...LOGY DEPT.

Gas Journal

Vol. 271. 104th Year. LONDON, AUGUST 13, 1952.
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DETROIT

STEELHOIST

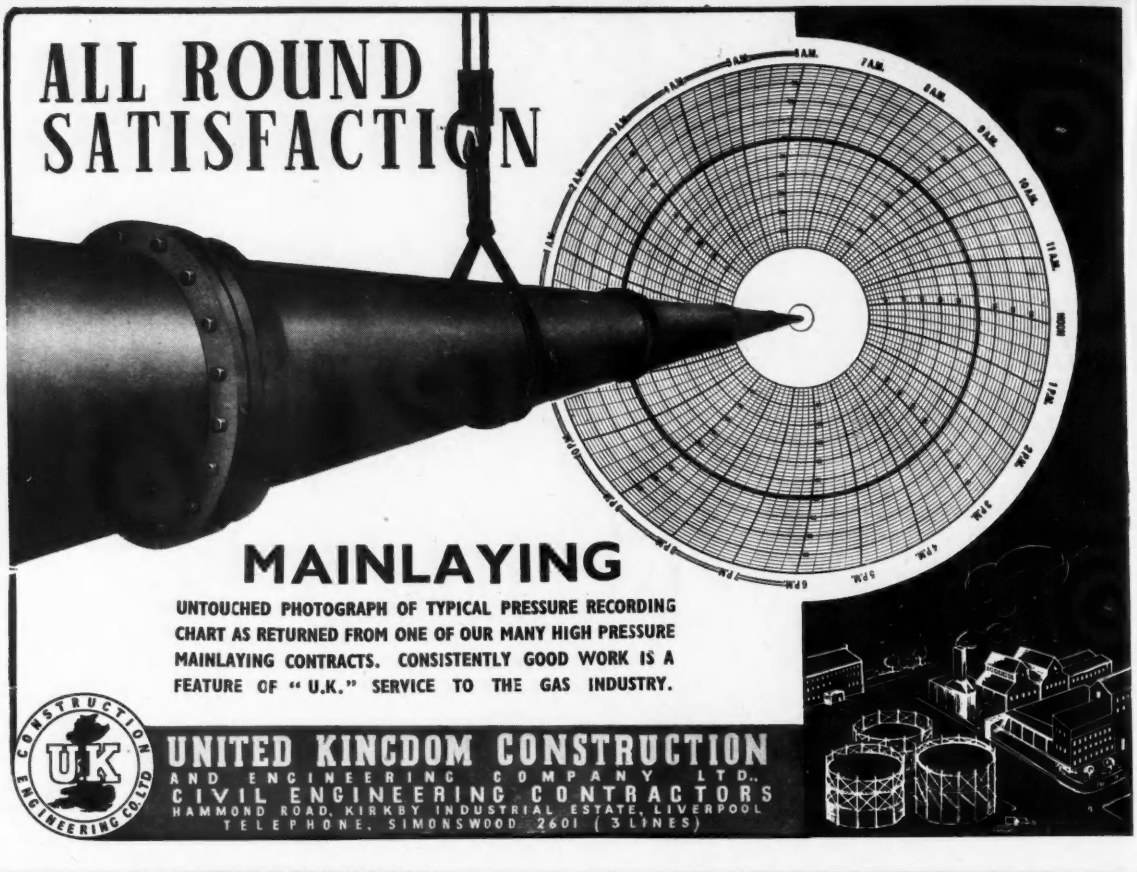
THE **ROTASIDE** WAGON TIPPLER

Also Rotary and Mobile Tipplers, Tippler Hoists, Wagon Right-Anglers (for the smaller works) . . . Automatic Skip Hoists . . . Telpher Plants . . . Transporters . . . Conveyors etc. Designed, manufactured and installed by

STRACHAN & HENSHAW LTD

STEELHOIST WORKS, BRISTOL 2 (Telephone: 77664)

ALL ROUND SATISFACTION



MAINLAYING

UNTOUCHED PHOTOGRAPH OF TYPICAL PRESSURE RECORDING CHART AS RETURNED FROM ONE OF OUR MANY HIGH PRESSURE MAINLAYING CONTRACTS. CONSISTENTLY GOOD WORK IS A FEATURE OF "U.K." SERVICE TO THE GAS INDUSTRY.

UNITED KINGDOM CONSTRUCTION
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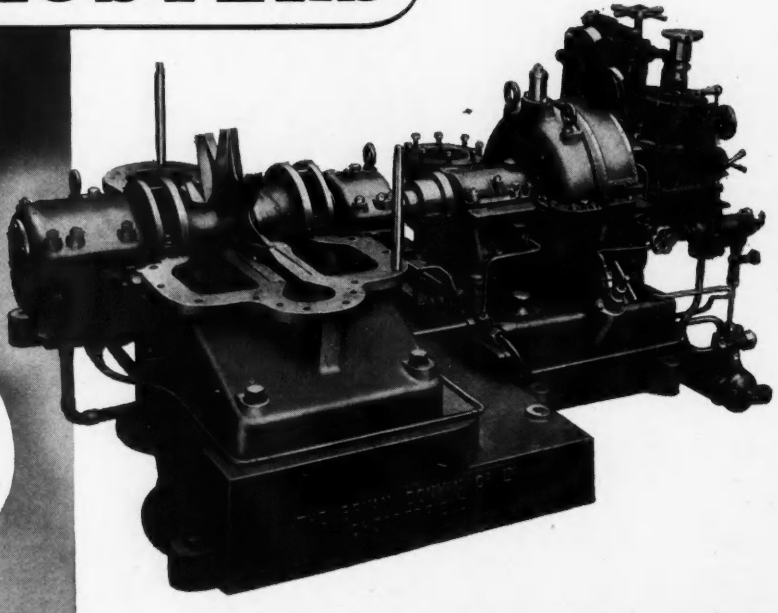
TELEPHONE, SIMONSWOOD 2601 (3 LINES)

EXHAUSTERS



I.L.P. 640
Double Inlet Star Type-Fan. Capacity 10,000,000 cubic feet of Gas per day, against 72" W.G. running at 8,700 revs. per minute driven by Steam Turbine. Dimensions 6' wide 8' long, 4' high.

The BRYAN DONKIN CO LTD · CHESTERFIELD

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The Proof of the Pudding is in the "HEATING"

DOMESTIC GAS CONTROL

BY Sperson

This Thermostat is designed to meet the needs of modern cooker construction. One of its most important features is the ease with which it can be dismounted for cleaning purposes. This can be done without breaking the gas connections, and without upsetting the calibration. It is made to conform to the latest B.S.1250 temperature requirements. A modified version of this thermostat is available for Baker's Ovens. *For further information please apply for Pamphlets* G.265, G.271 *and* T.538.

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Dependable Year-in Year-out

Product of Radiation Ltd

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122, KINGS ROAD.

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GEORGE GLOVER & CO., LTD.

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Roots Type

Capacities up to One Million cubic feet per hour

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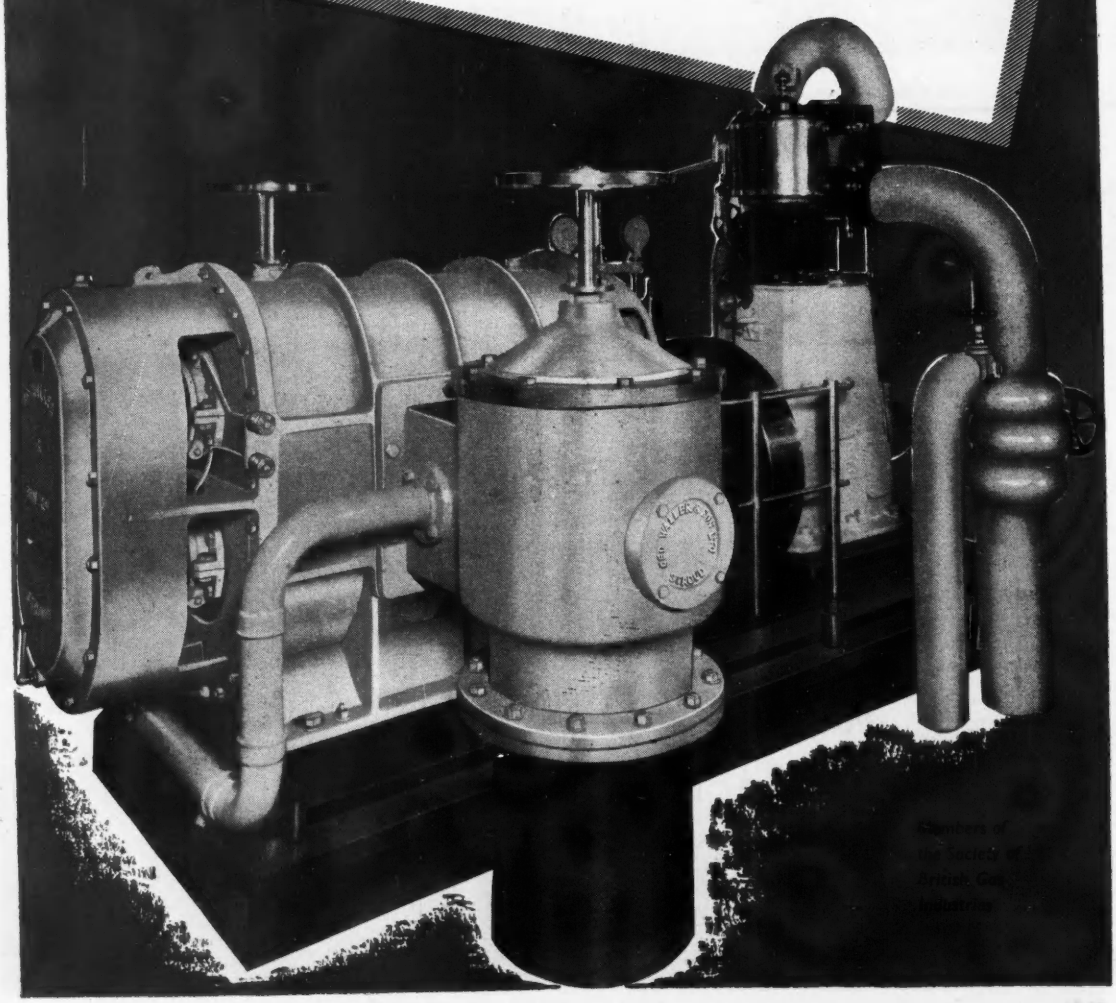

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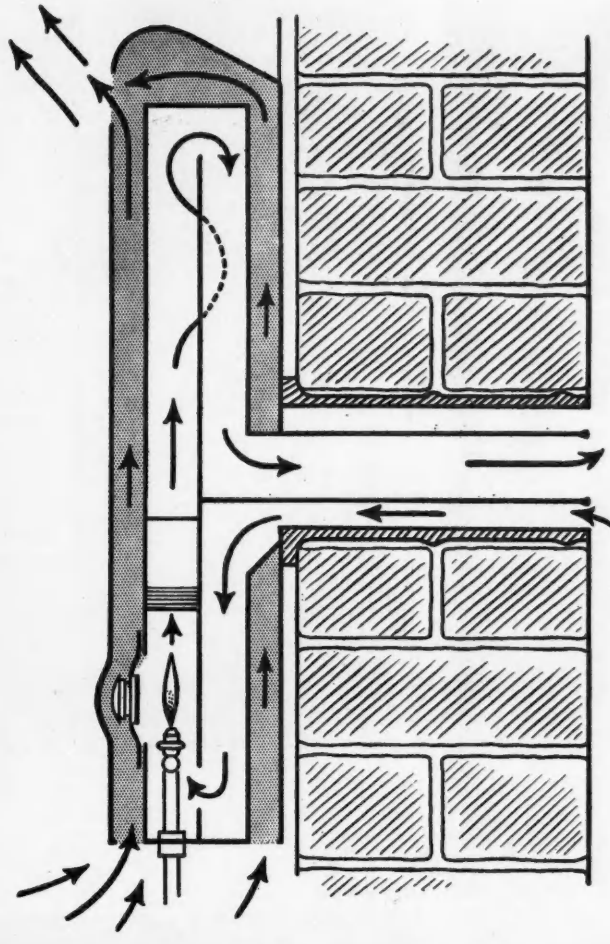

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★SAFE

Air drawn from outside building.
Products discharged outside building.

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75% at any tap position.
Low consumption and running cost.

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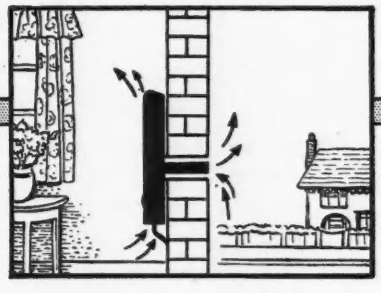
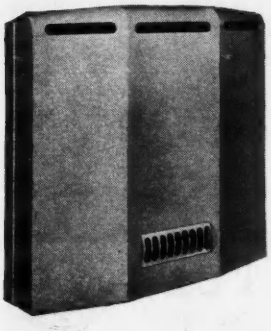
Room air unaffected by combustion.
Perfect circulation—adequate but not excessive ventilation.



THE "*Sapphire*"

BALANCED FLUE (GAS) SPACE HEATER



Information upon request from manufacturers

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EDGAR

provide gas installations throughout the

WHITE CITY L.C.C. HOUSING ESTATE

The extensive housing estate at White City, London, is yet another L.C.C. building project in which responsibility for gas installation was entrusted to William Edgar & Son Ltd. Approximately 24 miles of M.S. tubing and 40,000 malleable fittings were used on this contract.

William Edgar & Son Ltd., are contractors for domestic and industrial central heating and hot water installations. The company are official contractors to many Gas Boards for domestic and industrial gas carcassing.

WILLIAM EDGAR & SON LIMITED

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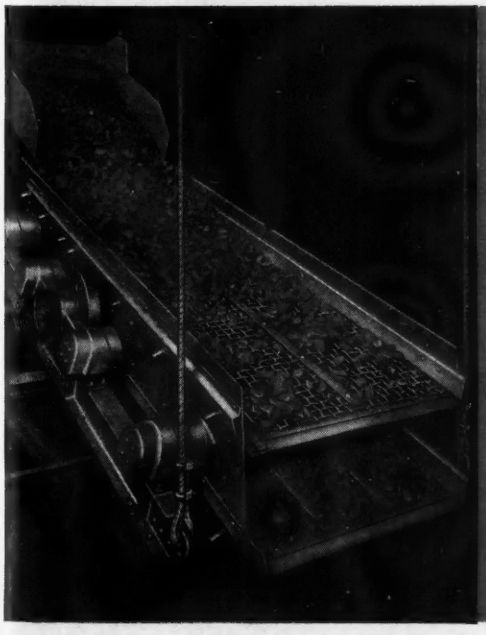
consistent screening of product at all feed rates



- Full-floating, balanced mechanical screen with vibrating body mounted on rubber.
- Self-adjusting to varying loads.
- No movement transmitted to base frame. Bearings thus have a longer life.
- Circle-throw operation gives great screening efficiency.

Ty-rock Screens are made in a range of sizes for wet or dry screening —one, two or three decks. Write for full details :

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74

Embracing all aspects of industrial CORROSION-PREVENTION

THE wise Maintenance Engineer leaves the work of anti-corrosion protection for his factory to Wailes Dove Bitumastic Ltd. He knows that they provide an all-in specialised service which includes the furnishing of all gear, the pre-cleaning of surfaces, the supply of materials, their correct application by skilled men and lastly and most important of all, they advise him of the most suitable coatings to be used. Why not follow his example? Drop them a line today with details of your particular corrosion problem.

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Send for range of illustrated literature

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SOLUTIONS & ENAMELS

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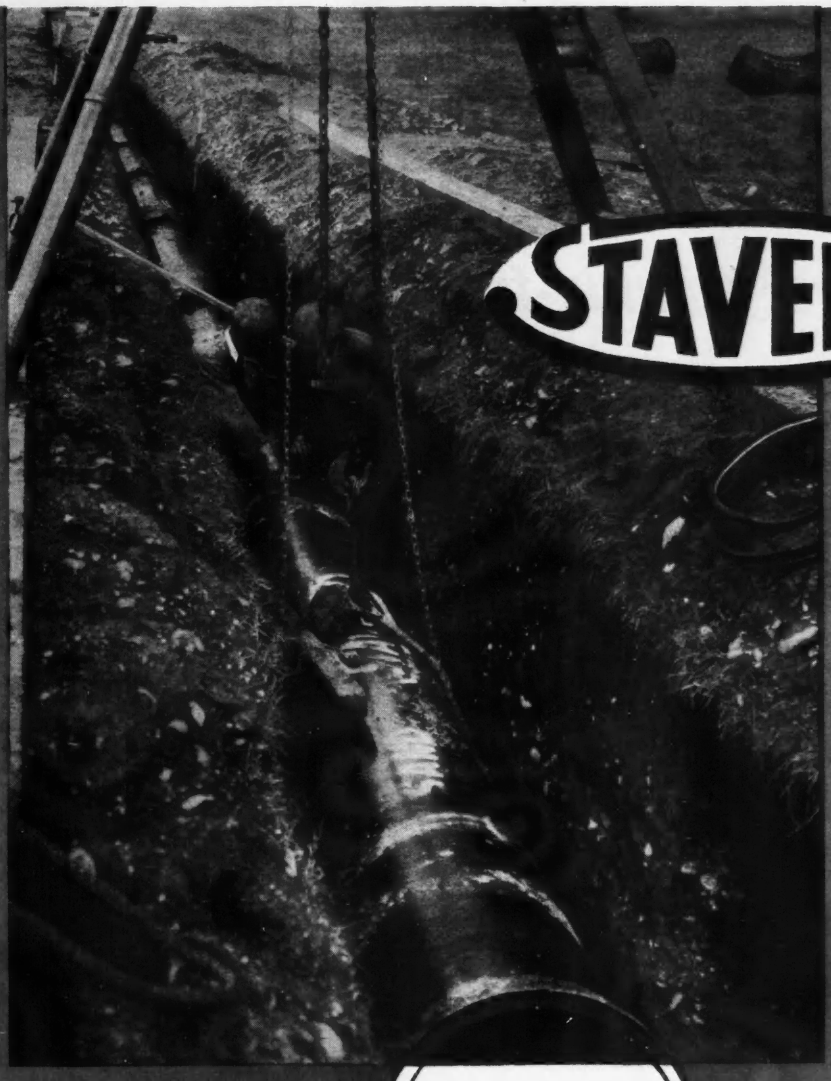
WAILES DOVE BITUMASTIC LTD • HEBBURN • Co. DURHAM



STAVELEY

FOR GAS & WATER MAINS

In extensions to gas works installations and the development of new projects, cast iron mains are of primary importance.

Staveley pipes can be relied upon to give an efficient layout—as they have done for many years past.

SAND & METAL SPUN PIPES

THE STAVELEY IRON & CHEMICAL CO. LTD. NR. CHESTERFIELD

I.C.I. Copper tubes ensure trouble-free Gas Systems

For domestic gas systems, light gauge copper tubes made by the Metals Division of I.C.I. have five obvious advantages. They are:—

1 **Economical, both in laying costs and maintenance.**

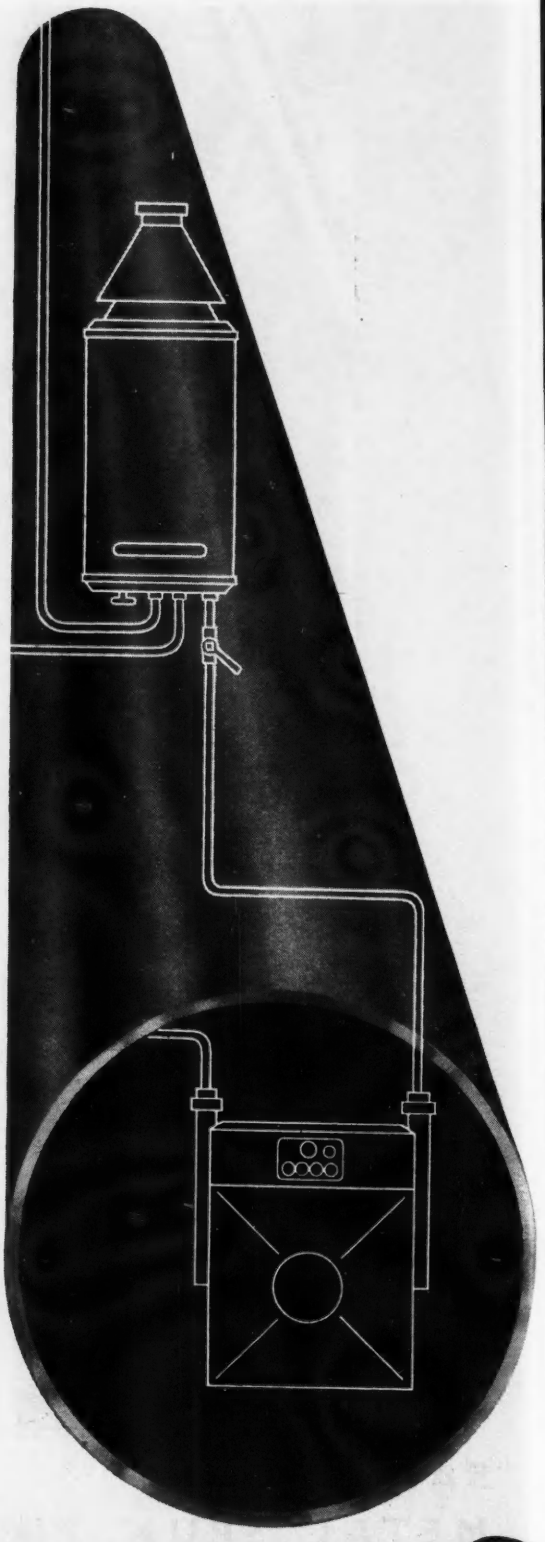
2 **Not attacked by normal town gas.**

3 **Easily manipulated and installed.**

4 **Strong in relation to their light weight.**

5 **Neat in appearance.**

Whatever the building—farmhouse or factory; house, hotel or hospital—the job is better done with I.C.I. copper tubes.



IMPERIAL CHEMICAL INDUSTRIES LTD LONDON SW1

Fittings for copper tubes are made by Fyffe & Co. Ltd., Dundee, a subsidiary company of I.C.I.

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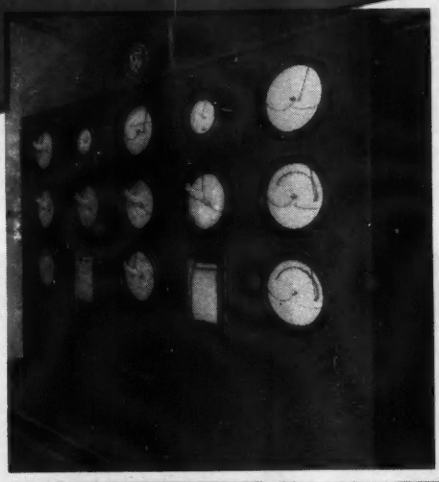
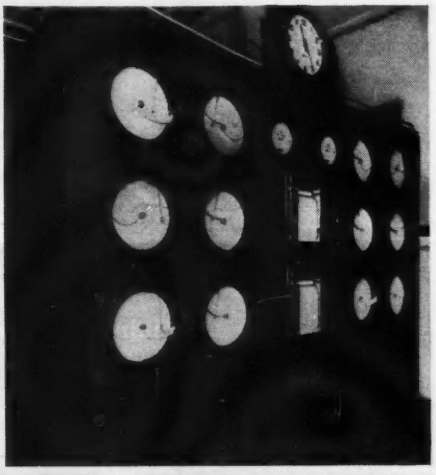
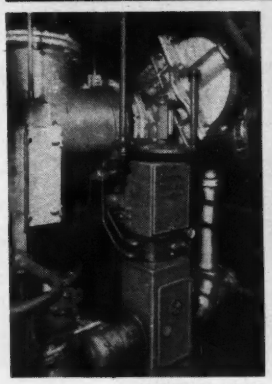
ELECTROFLO INSTRUMENTATION AT NORTHAMPTON GAS WORKS



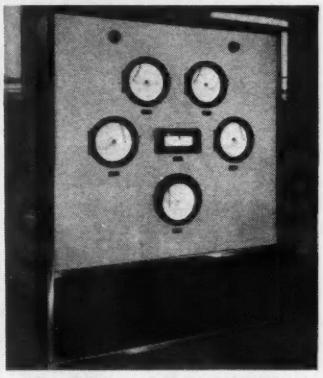


The "Carbonising Panels" illustrated, cover all essential measurements for the systematic chemical and technical control of the two West's Benches installed last year. Any periodic variations, tendencies or abnormalities are revealed by the daily data provided. This is typical of the retort-house instrumentation Electroflo is installing in increasing numbers of new works.



This ultra-fast Electroflo Retort House Governor ensures a remarkably stable chart "line" under plant conditions requiring "anticipatory action" due to the sector discharging system.

Other "Series 55" governors control (blown) air to producers to ensure constant volume and quality of fuel-gas to settings.



The exhauster house panel, itself, was actually made on the works to accommodate various gas pressure and calorific value instruments previously mounted around the walls.

COMPLETE INSTRUMENT SERVICE TO THE GAS INDUSTRY

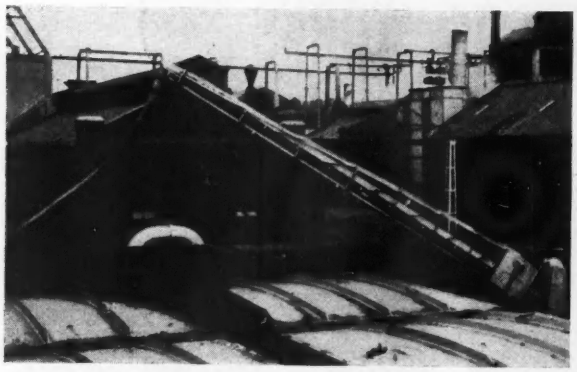
Ask for Catalogue No. 40.
"Instruments for the Gas Industries."
Catalogue No. 85.
"Automatic Regulators."

ELECTROFLO

METERS COMPANY LIMITED

Advt. of: ELECTROFLO METERS COMPANY LIMITED, ABBEY ROAD, PARK ROYAL, LONDON, N.W.10

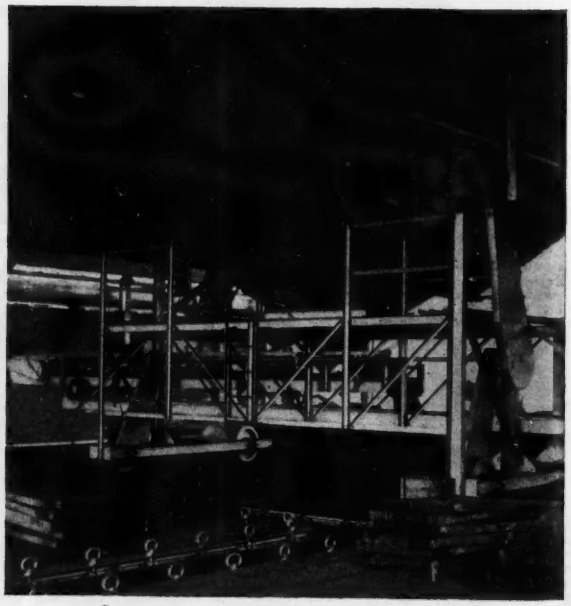
SIMPLIFIED OXIDE HANDLING



The Crone & Taylor 40 ft. Mammoth Conveyor illustrated on the left is equipped with a canvas shoot. This machine will quickly and easily elevate oxide from ground level and spread it lightly into the boxes.

The illustration below shows a traversing reversible shuttle conveyor fed by an over-head skip hoist. This conveyor spreads prepared oxide lightly into every part of the box, resulting in an enormous saving of time and labour.

We have specialised for over 20 years in the manufacture of equipment for simple oxide handling. If you have an oxide handling problem, we will be pleased to investigate it, and make recommendations without obligation.



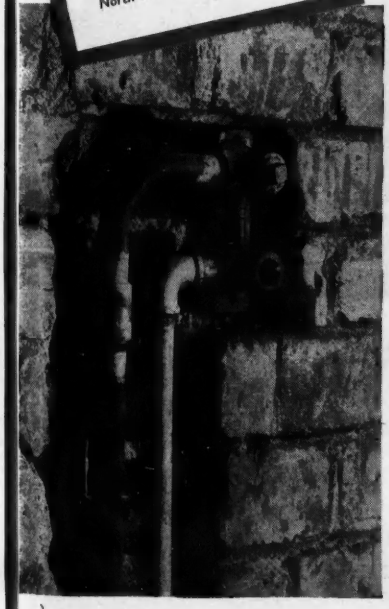
CRONE & TAYLOR LTD.
SUTTON OAK. ST. HELENS. LANCS.
Telephone: St. Helens 3397

CT 2687

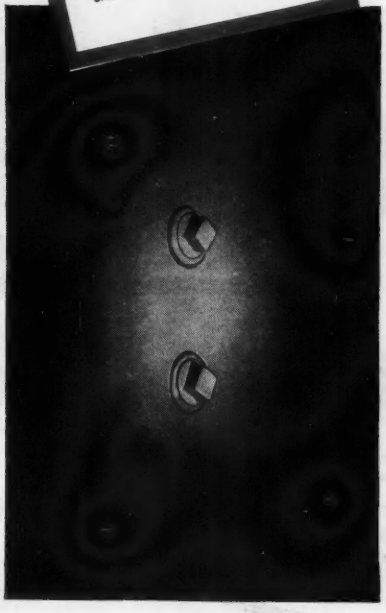
44 HOUSING AUTHORITIES ADOPT ASCOT JIGGED WALL FITTING

Cheap Installation of Alternative Hot Water System

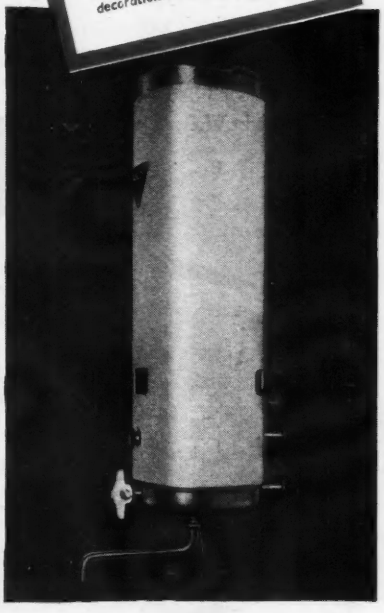
The new Ascot jigged wall fitting which cuts the cost of installing gas water heaters at the kitchen sink to a few shillings, has had a tremendous reception. 44 housing authorities have already adopted it, and upwards of 20,000 have been installed. The Ascot jigged wall fitting is chased in by the sink during erection of houses or flats, leaving neat capped ends just exposed. The cost is negligible. A tenant can then arrange at any time for an Ascot sink heater to be fitted, a job which takes only 20 minutes and leaves the surface decoration undisturbed. Housing authorities have adopted the Ascot jigged wall fitting because it provides at extremely low cost the means of obtaining an alternative supply of hot water at the kitchen sink. *Tenants particularly appreciate this convenient service which supplements the solid fuel heating system, especially in the summer, and at the same time saves money and fuel.* The jigged wall plate takes the Ascot 503 range of heaters and the Ascot RS 52/1 boiling water heater.



The jigged wall fitting consists of a back plate drilled with screwholes for fixing to wall, and two integral pipeways, one for gas and the other for water. (Photo by courtesy of North Thames Gas Board).

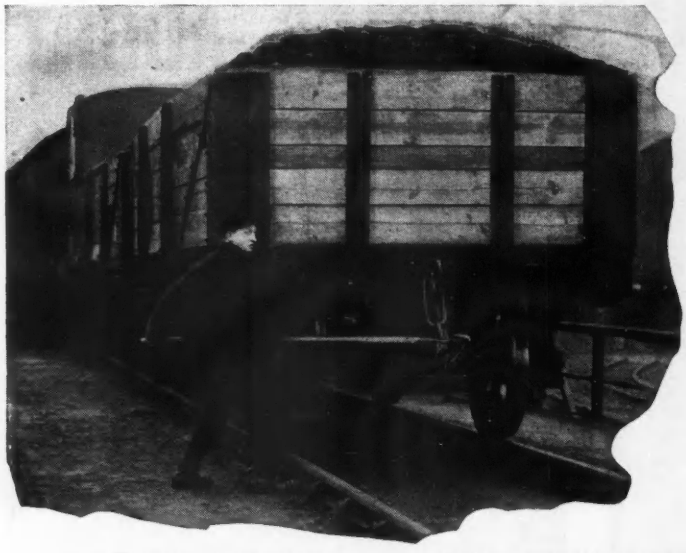


Supply pipes and jigged wall fittings are chased into the wall during construction and plastered over. Plugged ends neatly protrude as shown.



When the heater is fitted—at any time—the plugs are removed, the heater attached. Simple, cheap and reducing time of fitting to only 20 minutes—leaving surface decoration undisturbed.

ASCOT GAS WATER HEATERS LIMITED • 43 PARK STREET • LONDON W.1

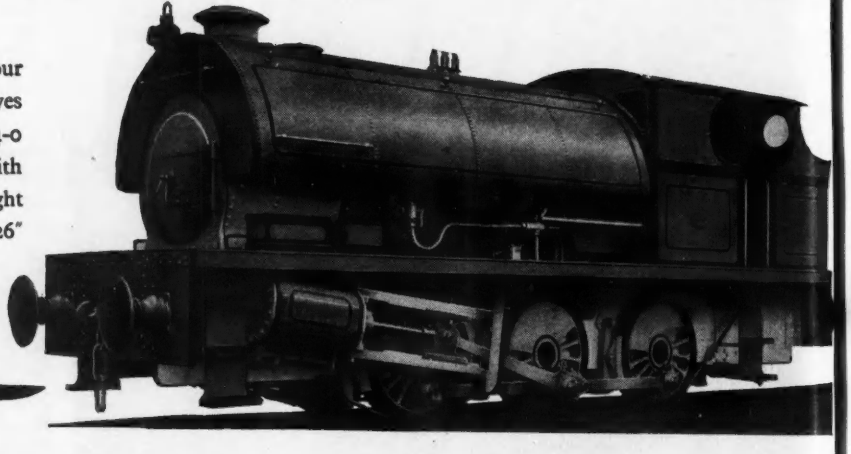


LINK YOUR LOAD...

Peckett Locomotives make light work of heavy loads. Standard and special designs have served a great variety of industries for many years and are widely used by the Nationalised Industries. Robust construction, first-class workmanship and design, combined with the inherent reliability of steam traction, ensures "round the clock" operation of Peckett Locomotives with minimum maintenance.

...WITH THE POWER THAT PULLS

The illustration shows one of our range of standard Locomotives which can be supplied in 0-4-0 or 0-6-0 Wheel formation with Cylinders from 10" × 15" (Weight in W.O. 18 tons) to 18" × 26" (Weight in W.O. 51 tons).



PECKETT

INDUSTRIAL LOCOMOTIVES

Products of Experience

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Peckett and Sons Ltd.,
Atlas Locomotive Works, Bristol, 5

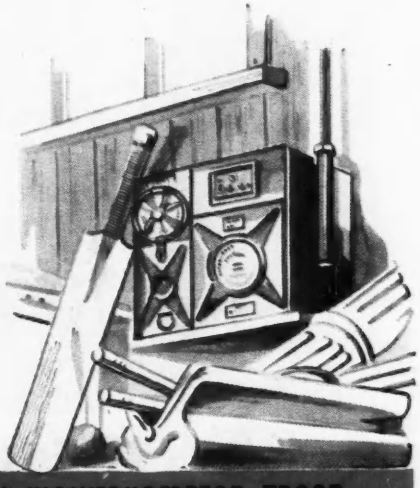
'Phone: Fishponds, Bristol, 53006
Telegrams: Peckett, Bristol

347/1969/A

Meet at the Wilson Meter

Whatever the attraction, cricket, tennis, or some less active sport, in an unseen corner—close at hand —a gas meter is carrying out its life long task. Often it's a Wilson.

ONE OF BRITAIN'S BACKROOM BOYS



GEORGE WILSON GAS METERS LTD.

COVENTRY JARROW LONDON MANCHESTER BLACKPOOL WOLVERHAMPTON TROON

with

B.O.C FLAME CLEANING

Why waste time chipping and wire-brushing away at corroded tubes and bars? Put this B.O.C Ring Burner to work and rust scale is quickly turned into harmless oxide dust, which can be lightly brushed away. There are B.O.C Flame Cleaners designed for every shape and size of work. Not only does the heaviest deposit disintegrate before your eyes; the cleaned surface is left warm and dry—in perfect condition for painting. Conserve metal parts, keep your machinery running and cut labour charges with B.O.C Flame Cleaning. We will gladly send you our Booklet T.I.B No. 11 which has all the details.

Make and Mend with B.O.C Equipment, Materials, Service.

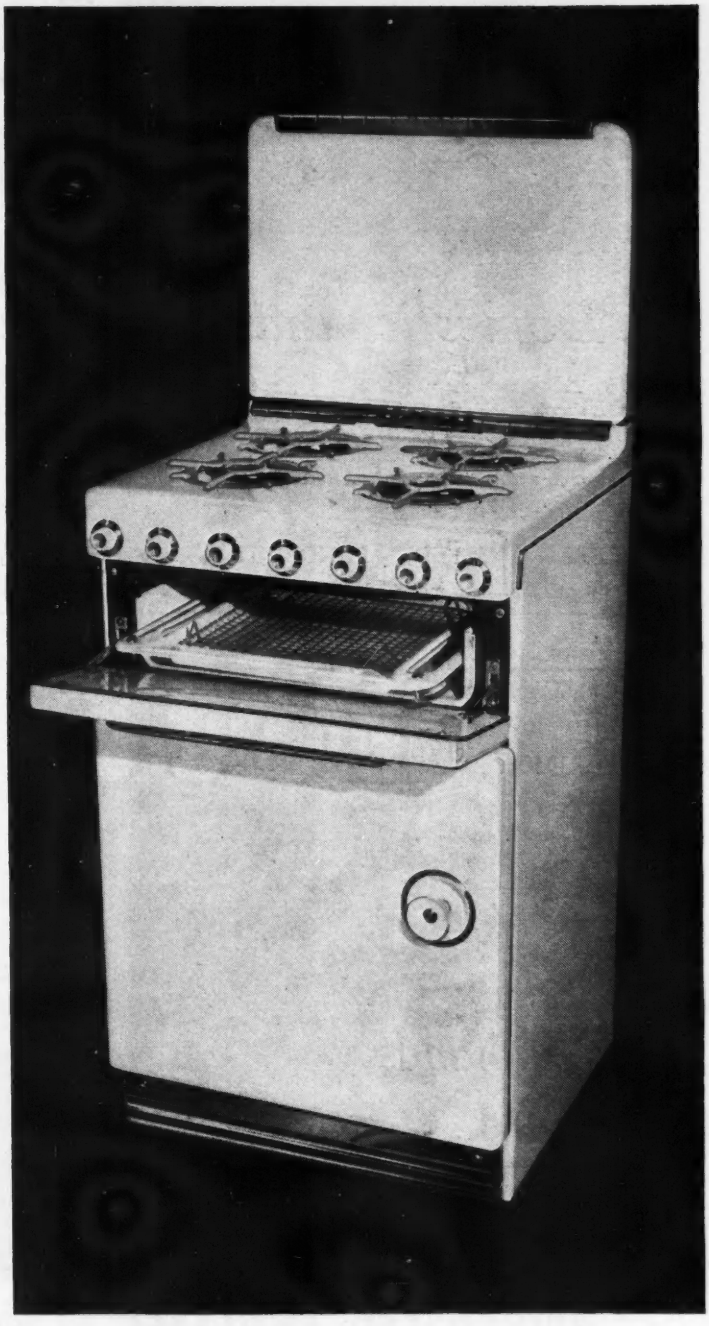
THE BRITISH OXYGEN CO LTD

LONDON & BRANCHES

FULL-PAGE ADVERTISEMENTS are inviting the public to your showrooms to meet the Raymond, most luxurious and efficient gas cooker, selling at 61½ guineas

BE READY TO SHOW YOUR CUSTOMERS THE SPECIAL VIRTUES OF THIS MOST MODERN COOKER

- ★ A most attractive appearance
- ★ Concealed plate rack
- ★ Larger hotplate
- ★ Interchangeable hotplate parts
- ★ Safety type taps
- ★ Taps turn with exceptional smoothness for flame control
- ★ All burners light automatically
- ★ Safety device for automatic oven-lighting
- ★ Easily accessible, standard-type battery for lighting
- ★ Enclosed grill chamber
- ★ Larger grill
- ★ Larger oven
- ★ Thermostatic control of oven heat
- ★ Grill pan can be used in the oven
- ★ Oven shelves cannot tip or pull out accidentally
- ★ All oven linings are removable
- ★ Stands flush against the wall
- ★ Oven ventilation in front of splash plate
- ★ Stainless vitreous-enamel finish throughout
- ★ All metal parts are stainless and rustproof

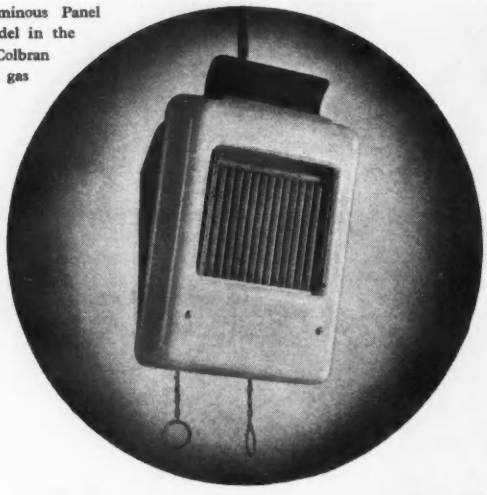


In all these leading publications full-page advertisements are appearing to the end of the year: Punch, Good Housekeeping, Sphere, Illustrated London News, House & Garden, Homes & Gardens, Ideal Home, Woman's Journal.

THE RAYMOND GAS COOKER IS A PRODUCT OF GENERAL GAS APPLIANCES LTD., AUDENSHAW, MANCHESTER

Proprietors: Allied Ironfounders Ltd.

The Junior Luminous Panel Heater, latest model in the range of Bratt Colbran overhead radiant gas heaters.



Bratt Colbran

Domestic and Industrial Gas Appliances

Throughout the whole field of gas heating, from a simple panel fire for bedroom use, to a large scale overhead system for factory or town hall, there is a Bratt Colbran appliance perfectly suited to the purpose, each with its traditional characteristics of reliability, fine quality and good design.

On the industrial side, Bratt Colbran (Infra-Red) Radiant Units built up in oven form, may be used for many drying and stoving processes. Our technical department is at Your service for advice on the design of installations.

BRATT COLBRAN LIMITED, LANCELOT ROAD, WEMBLEY, MIDD'X. Telephone : WEMbley 622

Showrooms : 10 Mortimer Street, London, W.1. Telephone : MUSeum 9411

CIVIL ENGINEERING

DOUGLAS

BUILDING

Screen Wall for West Midlands Gas Board Swan Village Gas Works

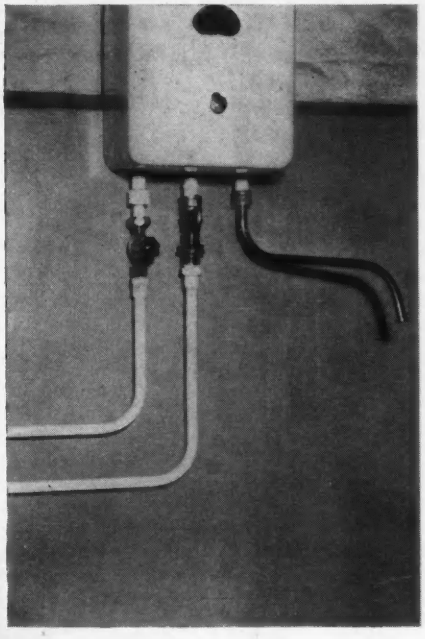
Henry M. Hale & Partners. Structural Engineers

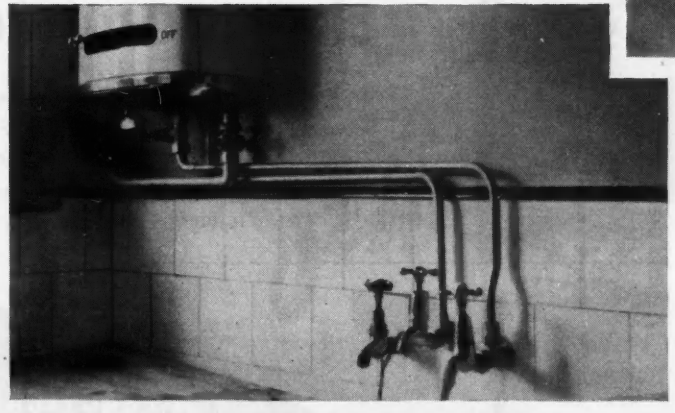
REINFORCED AND PRESTRESSED CONCRETE
GAS MAINS RAILWAY SIDINGS ROADS ETC.

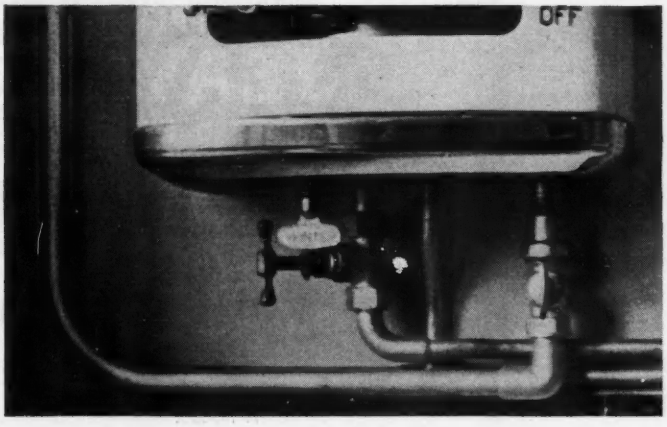
ROBERT M. DOUGLAS (CONTRACTORS) LTD., 395 GEORGE ROAD, BIRMINGHAM, 23
and BRIDGE ROAD, WAUNARYLWYDD, SWANSEA

"Yorkshire" TUBES & FITTINGS

FOR GAS INSTALLATION PIPE LINES







Pipelines of "Yorkshire" Light Gauge Copper Tubes and "Yorkshire" Fittings are neat in appearance, permanently reliable, simple and quick to instal and show a definite saving in labour costs.

They are entirely leak-proof as the fittings are made from non-porous pressings, and the joints are unaffected by expansion, contraction and vibration. The smooth, full bore reduces friction and gives more uniform gas pressure, whilst the high resistance to corrosion eliminates maintenance work.

"Yorkshire" Tubes and "Yorkshire" Fittings also provide the ideal pipeline for gas service and carcassing work.

Photographs by courtesy of the Tottenham and District Gas Company

THE YORKSHIRE COPPER WORKS LTD.

LEEDS & BARRHEAD

B

Wings Day SEPT 20 Give for those who Gave

here's the *accurate* thermometer

Where accuracy over any suitable range between a temperature of -240°F and +400°F. (or Centigrade equivalents) is required, this fully compensated Thermometer is highly recommended.

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Photograph shows a duplicate set of 8" "Jeavons-Emco" High Pressure District Governors in brick built house.

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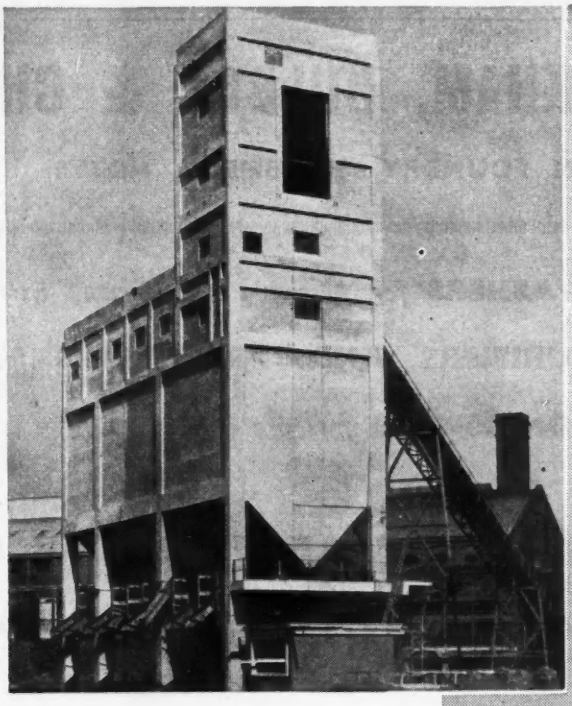

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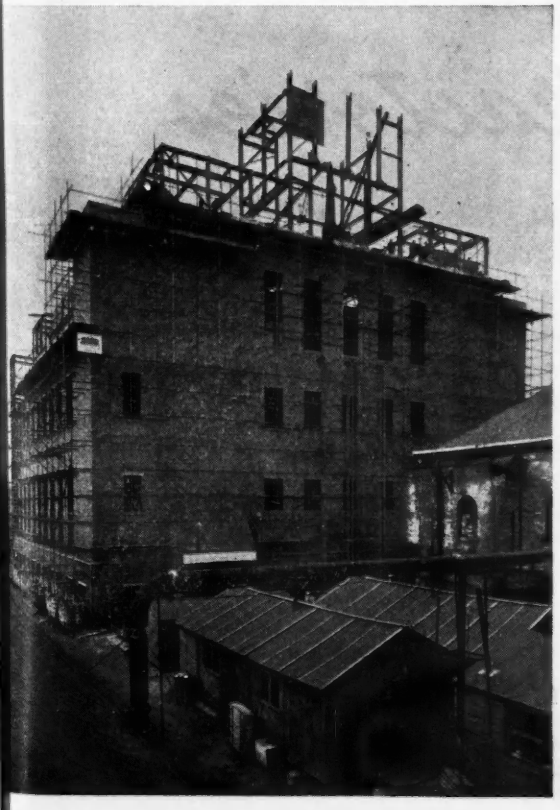

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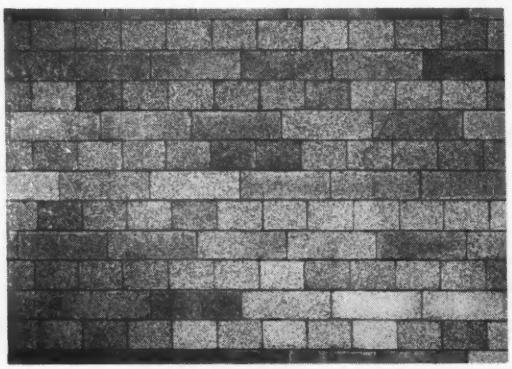

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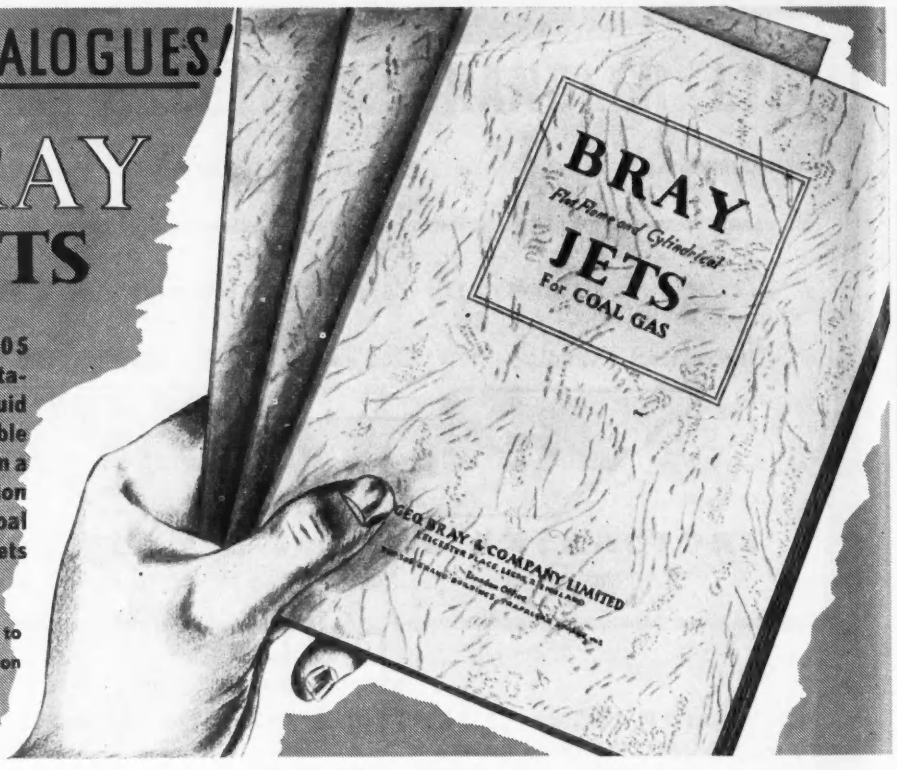

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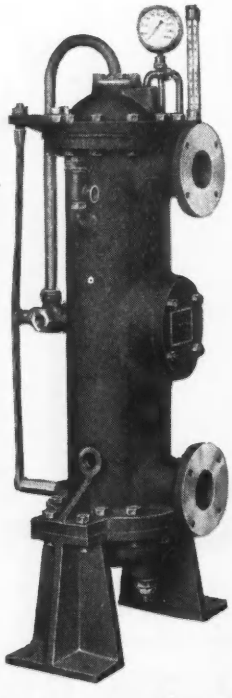

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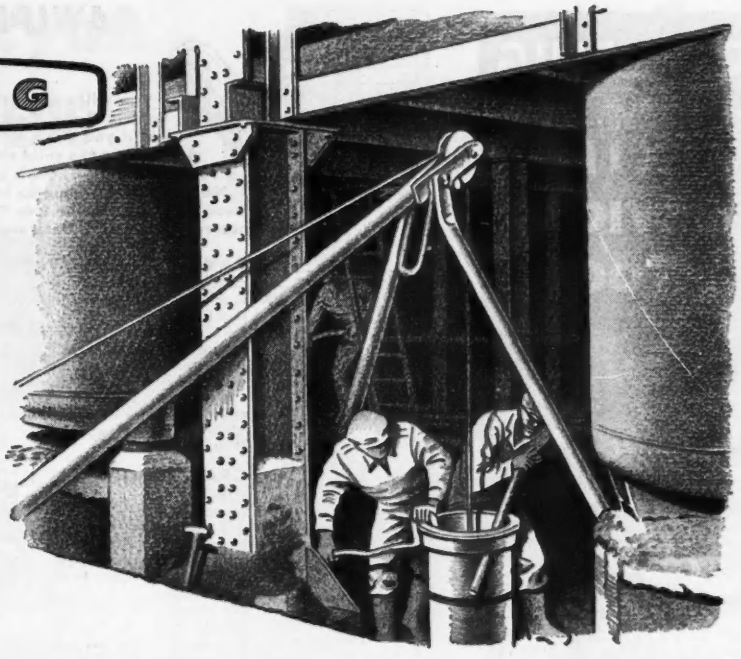

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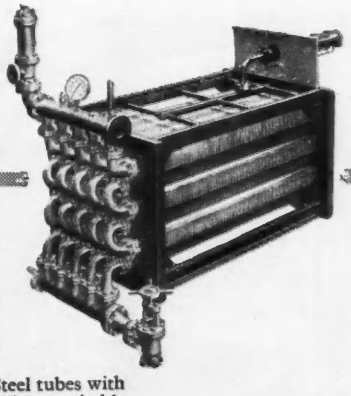

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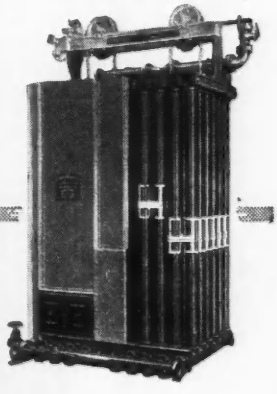

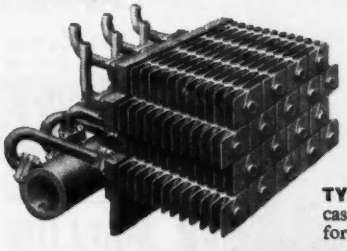

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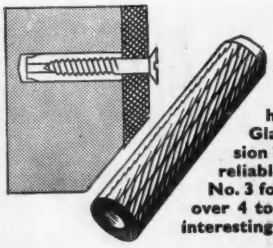

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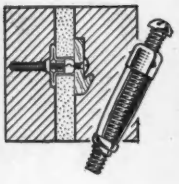

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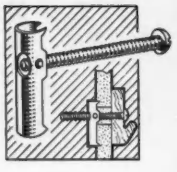

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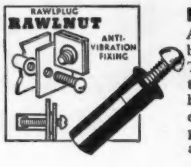

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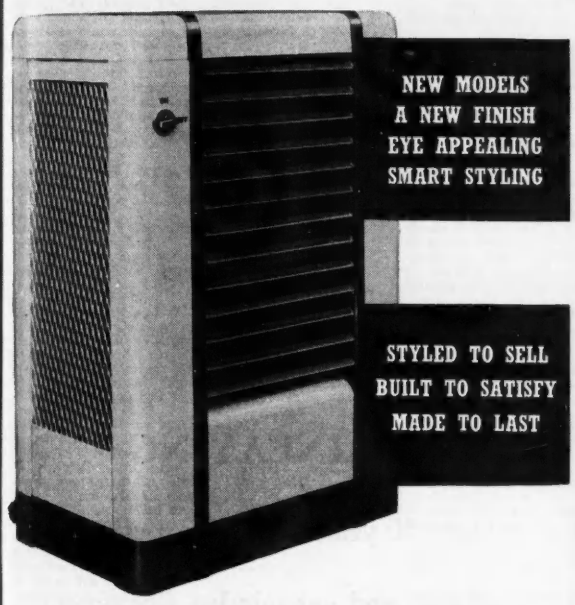

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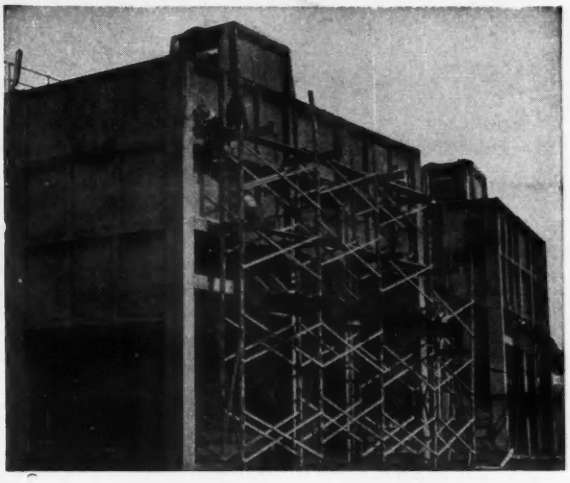

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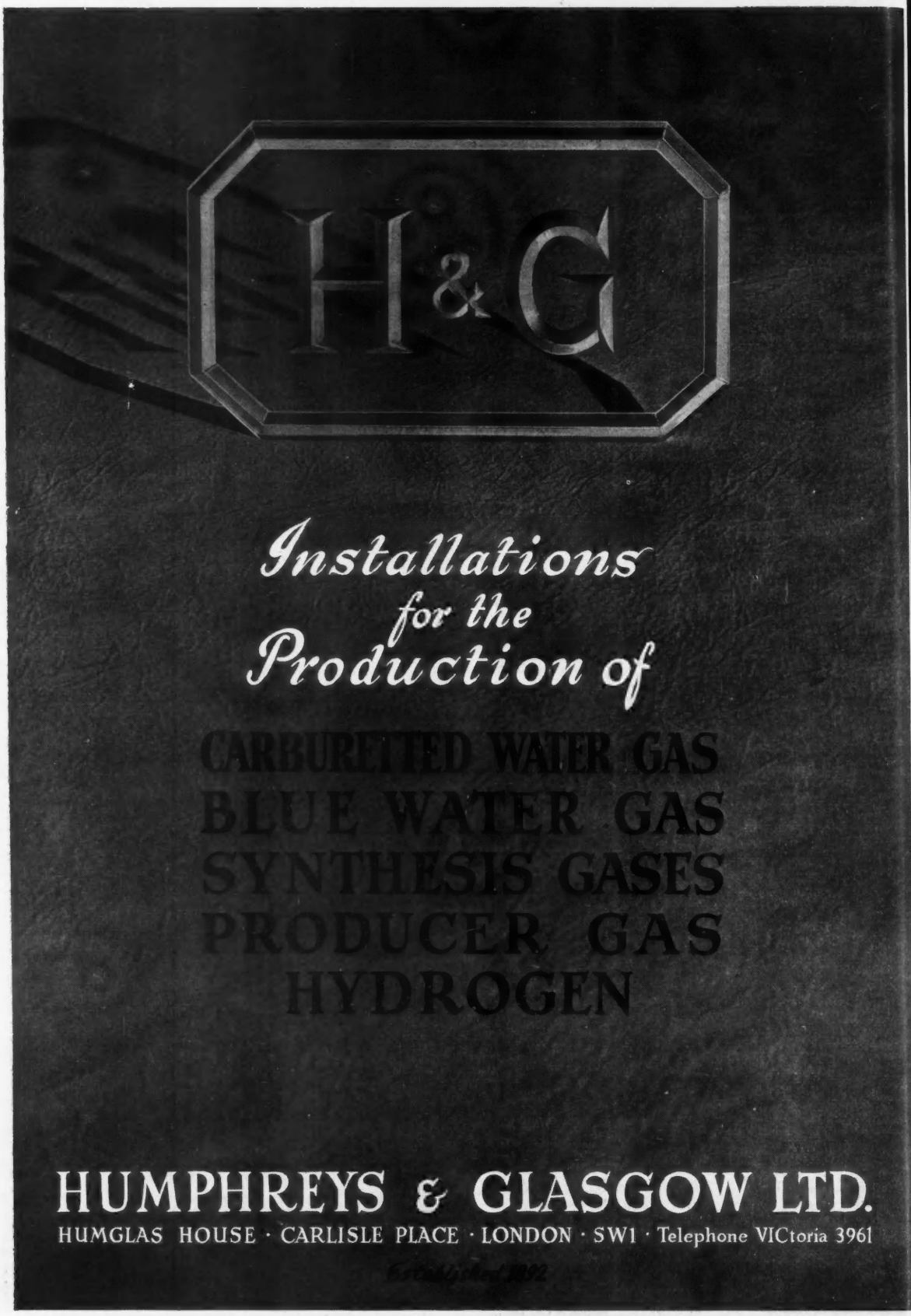
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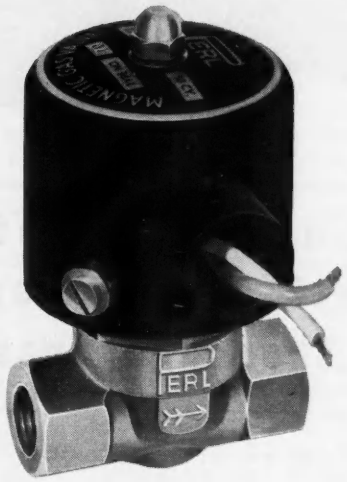

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Gas Journal

104th YEAR OF PUBLICATION

EDITOR: NORMAN S. SMITH, B.Sc. (Gas Eng.)

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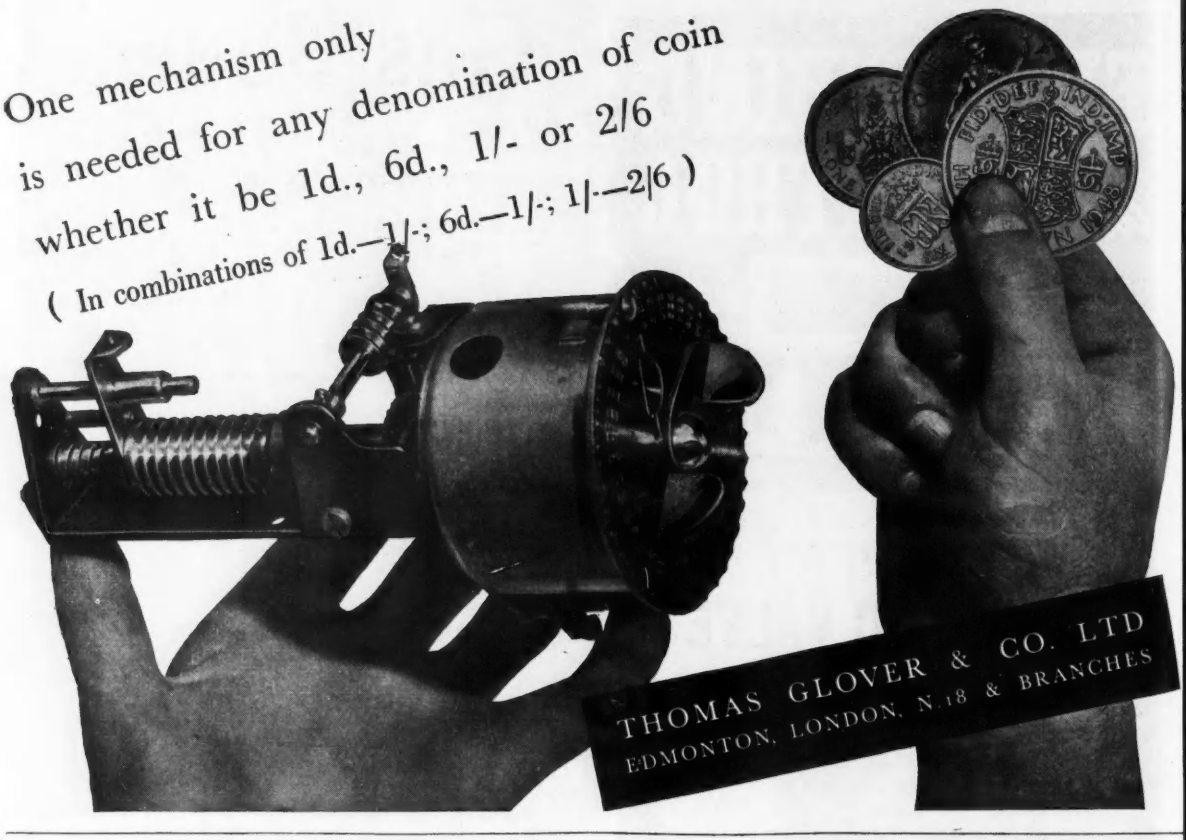

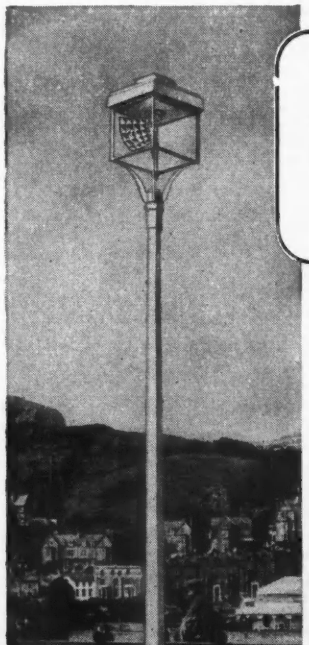

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GAS JOURNAL

VOL. 271. No. 4654 104TH YEAR AUGUST 13, 1952

GAS IN EUROPE

IN these days of wars and rumours of wars, hot or cold, the word international, if used at all, has rarely a pleasant connotation. It has been said that science knows no boundaries, and although boundaries have become frontiers, and frontiers iron curtains, this still to a considerable measure holds true when people of various nations with a common interest in any science, be it pure or applied, meet together. It was certainly true in the case of the conference recently held in Brussels. Whatever impressions were brought back by the delegates to this very successful meeting, the outstanding one must have been that the conference was in the best sense international and, moreover, that a great measure of its success resulted from its truly international character. There is no doubt that the fifth Conference of the International Gas Union made many impressions on all those who attended. To summarise those impressions is no light task.

Firstly, there was admiration at the excellent organisation and the ever-present evidence of the thought and work which had been involved in the preparation of the meetings and visits and extended to all the multitude of details which, both before and during such a conference, ensure its success. To all who took any part in this work, in connection with the meetings, the visits, or the social occasions, the delegates owe a debt of gratitude. Neither must the authors of the various papers and reports and those who took part in the discussions be forgotten. It is, perhaps, at this point permissible to record an impression of gratification that in this respect the British delegation played a by no means negligible part.

Secondly, there was, if not in all instances, in many cases, some impression of what may be described as a measure of frustration in that so much was provided that it was impossible fully to appreciate or wholly to absorb. It must, of course, be acknowledged that such a state of affairs is common to practically all conferences. If a word of constructive criticism may be offered to the organisers of conferences, it is that they should limit the papers to a number which can be absorbed by the hearers without acute mental indigestion. Visits to works should be sectionalised so that the various details may be studied by those interested rather than that the whole body of visitors should take part in a type of obstacle race against time.

In regard to the papers submitted at the conference, it must be acknowledged that their value does not end with the meeting. The reports and papers presented at the Brussels conference cover a wide field and provide a very valuable source of knowledge and reference. An analysis of the 28 papers and reports shows that 10 deal with some phase of gas manufacture, 10 with distribution of gas, and six with the utilisation of coke and gas. The remaining two reports are the statistics of the European gas industry, and education and training in the gas industry. While certain of the papers are only of general interest to engineers in this country, since they deal with a subject peculiar to the country of their origin, the majority of the papers are worthy of careful study. The Royal Association of Belgian Gas Engineers again presented their Statistics of the European Gas Industry, adding to their Report to the Fourth (London) International Gas Conference of 1949 the figures for the years 1948-1950 inclusive. The absence of statistics from Hungary, Poland, and Czechoslovakia is painful evidence of a state of things in which a frontier becomes an iron curtain.

Commenting upon the 1949 Report we referred to the unfortunate blanks in the table relating to the gas industry in Great Britain. There are still six blanks but three of these will remain so because they refer to conditions which do not prevail in this country. Two of the remainder are not yet of great importance—they

sub-divide length of gas mains between that used for 'transport' and that for distribution—but the sixth is one that we think it may be worth while to fill in in future statistics. It is that of the population actually served by the industry—the population, that is, as we understand it, lying within the areas in which distribution mains are actually laid. We made some attempt in 1949 to approximate to the missing figure, but we cannot repeat that today. But the argument for its inclusion in official statistics stands. It is that this figure gives an idea of the proportion of the population in the country which is in a position to avail itself of the advantages of a gas supply, while the quantity of gas sold to this proportion of the population gives possibly a better idea of the state of development of the industry in the country than the quantity sold *per capita* of the whole population. However that may be, Great Britain keeps her lead in respect both of proportion of population within reach of gas mains and of the quantity of gas consumed *per capita.*

The chaotic condition of British gas statistics of 1949, to which we then referred, is a thing of the past. The statistics published by the Gas Council are a complete picture of Gas in Britain. We can now turn to our friends on the Continent and say that quantities of gas expressed in volume only are useless for comparison without their calorific content. British statistics are now given, in the main, in cubic feet and in therms. It is interesting to note, by the way, that 2,669.9 mill. therms in 556,987 mill. cu.ft. corresponds to a grand average calorific value of 480 B.Th.U. per cu.ft.

The curve of total gas consumption continues to rise steeply. Coal gas is being increasingly supplemented by other forms of gaseous fuel. Methods show a growing diversity. We shall return to a consideration of several interesting papers in which these aspects of Gas in Europe were brought out.

PROBLEM OF THE OLD COOKER

THE Eastern Gas Consultative Council and its divisional committees have devoted considerable time to discussing the problem of the old cooker in its relation to prepayment supplementary charges and the need to secure the most economic use of gas. The question in its present form was raised some months ago by an aged Tottenham consumer who, having paid a supplementary charge to cover his cooker for a great many years, asked whether the charge could not now be reduced or waived altogether. Before vesting day the prepayment supplementary charge in what is now the Tottenham division applied to all gas consumed, but as a result of the action of the Consultative Council the Board limited the supplementary charge to 2d. per therm only on the first 30 therms consumed in any quarter to cover the rent of the cooker. The cost of maintaining old cookers is at present being borne by the Board and it may well be that in these days of high costs the rent received from the old black cookers does little more than cover the cost of maintenance. If the Board were to offer these cookers to consumers at a nominal charge or made no charge for them at all as the Council has suggested it would follow that the consumer would be called on to pay the cost of maintenance and as a result he might not be better off.

Alderman Turner, Chairman of the Consultative Council, said last month that it was the Board's policy to replace these old type cookers by appliances of more modern design at the earliest possible moment, but he pointed out that when this was done it was obvious that the present charge of 2d. per therm with a maximum of 5s. per quarter would be insufficient to cover the rent because of the high cost of the new cookers. He did not think it would be advisable for the Board to make available to prepayment consumers as a whole cookers on simple hire or hire-purchase terms, for this would involve a separate quarterly account for the hire. It transpired in last month's discussion that at the end of last December the Board still had 92,573 of these old cookers on its books, but the Council was reassured that the Board was trying to replace them 'as quickly as possible.' Members complained that they had no more than vague statements, and in view of the generally accepted statement that new cookers were much more economical in the use of gas than the older appliances they urged that something more definite should be done. As a start they felt that standard tests should be carried out to determine precisely how much less gas a household of a given size was likely to use with a new cooker than with an old one, and as a further help to future discussion it was urged that statistics showing the proportion of old and new cookers in each of the five divisions should be made available.

A MIXED OUTLOOK

THE report of the Ridley Committee on national fuel policy has reached the Minister of Fuel and Power and will probably be published early next month. Meanwhile, almost on the eve of the summer recess, the Lords debated the annual report of the National Coal Board. Lord Leathers, Minister for the Co-ordination of Transport, Fuel, and Power, predicted an extra 3 mill. tons of coal from the mines this year. He expressed satisfaction that coal is no longer a political subject and felt the nation could take comfort from the thought that at last real progress had been made. Output increased from 209 mill. tons in 1948 to 223 mill. tons last year and Lord Leathers will be disappointed if production this year falls far short of 226 mill. tons. Over the last five years there has been an increase of about 15%, but this increase in production has not solved our difficulties. Ever since the war we have been short of coal for home use and have had difficulty, even with coal imported from America, in building up by the end of the summer sufficient stocks to tide us over the winter.

Lord Leathers thinks the productivity outlook is 'mixed.' While output per manshift at the face has been maintained at 3.17 tons the overall level shows a slight decline from 1.21 tons in the first half of last year to 1.20 tons this year. In his view the time has arrived for great changes in the concept of winning coal. Year by year it is dug deeper and we have almost reached the end of the period when greater out-

put can be achieved by short-term methods. Already 80% is being won and conveyed by machines, and the scope for extending conventional types of mechanisation is limited. In seeking increases of productivity we must look more to long-term development. The two factors chiefly limiting development in the last few years have been concentration on short-term needs and the shortage of mining engineers who are planners. The first difficulty can be overcome only through a general improvement in the coal situation, and the second is inevitably a slow process which the National Coal Board, Lord Leathers tells us, is pressing. The Lords' debate was the occasion of a maiden speech by Lord Hyndley, first Chairman of the National Coal Board, who, from his experience in the formative years of the Board, urged the need for building up coal stocks during the summer months.

MULTIPLE ENTRY

IN an open letter from 'One Publicity Man to Another,' published in the *Journal* for January 9, 'O'Pressed' wondered whether certain of the gas industry's press officers counted their success by the number of times they got their chairmen's photographs into print, and whether they cut a notch on their walking sticks to mark each occasion until they looked as though they were going about with totem poles. If this is indeed a habit of press officers, the mind boggles at the thought of what the office of the Editor of the North Western Board's *Link-up* magazine looks like—a tribal camping ground must appear plain in comparison. For with last month's issue the Editor was able to add no fewer than 21 notches, one for every time Mr. D. P. Welman's photograph appeared in the 24 pages of the magazine. In the circumstances one wonders why Mr. Welman's portrait did not also appear on the front cover. Was it the Editor's desire to guard against repetition? Was it a mere oversight? Or was the Editor re-sharpening his penknife?

Diary

Sept. 2.—East Midlands G.C.C.: Victoria Station Hotel, Nottingham, 11.30 a.m.

Sept 2.—South Eastern G.C.C.: Caxton Hall, Westminster, 2.15 p.m.

Sept. 10.—South Western G.C.C.: 34, Bridge Street, Taunton, 11 a.m.

Sept. 11.—Scottish Association of Gas Managers: Annual General Meeting, Barrfields Pavilion, Largs. (Golf and bowling competitions September 10; Wemyss Bay-Kyles of Bute excursion September 12).

Sept. 15.—Eastern G.C.C.: Connaught Rooms, Kingsway, W.C.2, 2 p.m.

Sept. 15-19.—Association of Public Lighting Engineers: Annual Meeting and Exhibition, Harrogate. Exhibition of public lighting equipment, Gas Council exhibit, Stand No. 9.

Sept. 16.—Irish Association of Gas Managers. Annual Meeting, Londonderry. (For programme see *Journal* of July 30, p. 237.)

Sept. 17.—Wales and Monmouthshire Section, I.G.E.: Third Annual General Meeting, Ruthin.

Sept. 25.—North Thames G.C.C.: Westminster City Hall, Charing Cross Road, W.C.2, 2.30 p.m.

Sept. 26.—Manchester and District Section, I.G.E.: Visit to Robert Dempster and Sons Ltd., Rose Mount Ironworks, Elland, Yorks.

Sept. 29.—West Midlands G.C.C.: Queen's Hotel, Birmingham, 2.30 p.m.

Personal

Mr. Joseph W. Pringle, M.INST.GAS E., M.INST.F., has relinquished his appointment as Chief Technical Officer (Utilisation) of the Newcastle Division, Northern Gas Board, and has joined Thomas De La Rue & Co., Ltd., as Chief Development Engineer at their Portabello Works, Warwick.

◇ ◇ ◇

Mr. T. S. Ricketts has been appointed by the Wales Gas Board to be Manager of the South Wales Gas Grid. The grid includes the eastern section, of which Mr. Ricketts has been Manager for some time, and also the western section. The grid extends from Monmouth in the east to Carmarthen in the west and covers an area of 1,900 sq. miles.

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Sir Donald Fergusson, Permanent Secretary to the Ministry of Fuel and Power since 1945, will retire on September 30, and will be succeeded by Sir John Maud, who has been Permanent Secretary to the Ministry of Education for a similar period. Sir John Maud was Dean of University College, Oxford, and later Master of Birkbeck College, London, before joining the Ministry of Food in 1941.

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Mr. J. W. G. Jarvis, a chauffeur in the employ of the Gas Council, has received his fifth award, a bronze medal, from the Royal Society for the Prevention of Accidents (formerly the National Safety First Association) for 25 years of safe driving without accident. He has been in the gas industry for 37 years, 34 of which he spent with the Gas Light and Coke Company. In the past 25 years Mr. Jarvis estimates that he has driven over 750,000 miles.

◇ ◇ ◇

Mr. H. Hall and **Mr. R. G. W. Eadie** have been appointed Directors of Bristol and West Tar Distillers, Ltd., a subsidiary of Wm. Butler & Co. (Bristol), Ltd. Mr. Hall has been associated with the parent company for nearly 30 years, and has been engaged at one time or another in almost every section of the Company's business. For the past 12 years he has been exclusively engaged in the sale of coal tar products, rising progressively from the position of Salesman to Commercial Manager. He is Secretary of the Bristol and District Co-operative Tar Scheme and is also a member of the Bristol Road Tar Association Technical Committee. Jointly with Mr. Eadie, he will be responsible for the commercial side of the Company's activities in the sphere of tar distillation. Mr. Eadie, a Graduate of Glasgow University and Fellow of the Royal Institute of Chemistry, was for 17 years with the Glasgow Corporation, Chemical Works Department, and during four of the war years served the Ministry of Fuel and Power as Deputy Coal Tar Controller. He joined Wm. Butler & Co. (Bristol) Ltd., in December, 1944, as a consultant and later became Sales Manager in charge of refined chemical products.

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Mr. W. H. G. Roach, M.B.E., Managing Director of William Press & Son, Ltd., is one of five past students of the City and Guilds of London Institute on whom have been conferred the distinction of Fellowship of the Institute in recognition of distinguished services and outstanding contributions to the advancement of the industry in which they are engaged. Mr. Roach is also Technical Director of D. & C. and William Press, Ltd., and a Director of the General Descaling Co., Ltd., and of John Paul & Co., Ltd., Dublin. Apart from the large and varied contracts for which he has been responsible, Mr. Roach rendered services during the last war in emergency organisations for buildings and for the repair of gas and water supplies. He was also responsible for the fabrication and installation of F.I.D.O. units on airfields in this country. Elected in 1937 to the Council of the Federation of Civil Engineering Contractors, he was Chairman in 1946-47 and since then a Vice-President. He is Chairman this year of the Society of British Gas Industries. Mr. Roach has also been concerned in labour relations and since 1938 has been a member of the Civil Engineering Construction Conciliation Board of which he was Chairman in 1946-47, and he also represented his industry in 1946 at the I.L.O. meeting in Brussels. In 1947 he was a member of the Government's mission for the purchase of heavy excavating machinery in the United States.

News in Brief

The Gas Board Showrooms were used as the headquarters and information bureau for the Wisbech Chamber of Commerce Silver Jubilee Shopping Week. Mr. L. H. Stanford, District Gas Engineer and Manager, who is Chairman, had the task of arranging most of the week's programme, which included gas cooking demonstrations and a special display of appliances.

Cost of Lighting.—A report of the Highways Committee of the Kidderminster Town Council estimates that as a result of new gas tariffs and maintenance charges, street lighting at Kidderminster will cost £7,825 in the year ending next March compared with £6,854 in the previous year. Despite this, the Committee has recommended that the Council should not accept the Gas Board's offer to transfer lighting maintenance to the Council, and to sell to it all the street lamps in the town for £1 each.

The First Meeting of the 1952-53 session of the Institution of Heating and Ventilating Engineers will be held on October 1 at the Institution of Mechanical Engineers, Storey's Gate, at 6 p.m. A paper on 'Industrial Radiant Heating,' by F. R. L. White (Vice-President) will be read and discussed. The President will present the Institution's Bronze Medal to Mr. R. A. Rose, A.M.I.H.V.E., for his paper 'Heating by Means of Tetra-cresyl Silicate,' and examination prizes to I. Everson and P. H. Wood.

Da Palma Court, a small estate erected by Fulham Borough Council and consisting of 33 flats for elderly people, was formally opened on July 26 by Mrs. da Palma, mother of a former Mayor of Fulham, the late Councillor J. A. da Palma. The flats have been planned as small self-contained units in comparatively quiet side roads adjacent to the main shopping centre and within easy reach of public transport and the general life of the borough. Each flat is fitted with a 'Fulham' gas-ignited coke fire complete with back boiler, and a gas heated drying cupboard, and 23 of the first 29 tenants have chosen gas for cooking.

Business Efficiency Exhibition.—The Office Appliance and Business Equipment Trades Association is to stage a second major Business Efficiency Exhibition this year. Since the war the exhibition has been the industry's annual national fair, but as the Government's request for a further intensified export drive has been received since the holding of the 38th exhibition at Birmingham in February, the Association is translating the silver jubilee celebrations of its incorporation into a major exhibition to be held at Kelvin Hall, Glasgow, from November 4 to 14. The show will be the most extensive of its kind ever held in Scotland and one of the largest the world has ever seen either in this country or abroad. Some 25% of office machines exported from the United Kingdom last year were made in Scotland.

The Annual Camp for North Thames Gas Board young employees was held this year at the Dorset County Schools Camp at Carey, near Wareham. More than 70 boys attended.

Tin Research.—The International Tin Research and Development Council has resolved that it will in future be known as the International Tin Research Council. This change will not affect the policy of the Council nor alter its current activities.

Darlington Corporation, which approached the Ministry of Fuel and Power to determine a dispute between the Corporation and the Northern Gas Board over street lighting charges, has been informed that the Ministry has no jurisdiction. The Town Clerk has been asked to obtain counsel's opinion on the matter and report back to the Corporation Finance Committee.

A Modern Gas Lighting System has been put into operation in the streets of Saffron Walden incorporating a total of almost 400 lamps and replacing installations, some of which went back 70 years. The scheme was prepared by Mr. A. R. Turner, Commercial Manager of the Eastern Gas Board's Cambridge Division, and involved no less than 186 new units.

In the 'People's Houses,' which form part of the post-war housing programme at Canterbury, and are the first of their kind to be erected in Kent, the South Eastern Gas Board has contracted to provide an internal installation for a cooker, wash-boiler, and gas-ignited solid fuel fire with back boiler. The latter is supplied throughout as standard equipment by the local authority.

Fined for Obstructing Gasmen.—Mrs. O. Lees, of Grosvenor Gardens Mews North, Victoria, S.W.1, was fined £1 with £2 2s. costs at Bow Street for obstructing North Thames Gas Board officials who came to inspect her gas meter and collect money from it. Mr. H. Barker, for the Gas Board, said that since September, 1951, it had been impossible for officials of the Board to gain admittance. Mrs. Lees refused to let them in. When two collectors went in May, Mrs. Lees said to them: 'No, you can't come in. You switched it off and I can do without it.'

The Gas Turbine Plant which is to operate experimentally at the Trafford power station of the British Electricity Authority was put into commission on August 6, when it was successfully synchronised with the national grid. The plant runs on gas oil, and the knowledge gained from its operation may help in other fuel-burning experiments that are being carried out by the Authority, the Ministry of Fuel and Power, and the Coal Board. The plant can be started from cold and yet feed electricity into the grid within a matter of minutes. It is likely to be used especially to meet peak hour demands. It requires less space, steam, and cooling water than the ordinary generator, but is more expensive. It develops 15,000 kW.

The London Sales Office of Britannia Batteries, Ltd., has been transferred from its old address at 66, Victoria Street, S.W.1, to new premises at 53, Victoria Street, S.W.1. The telephone number and telegraphic address are: Abbey 6168-9 and Britanicus, Sowest, London.

Window Demonstrations of home laundry were recently staged by the North Thames Gas Board in four of the Western Divisional showrooms—namely, Chiswick, Staines, Twickenham, and West Ealing. The demonstrations were for one day only, and created a great deal of local interest.

The Industrial Gas Development Committee held its monthly meeting at Watford on July 29, at the invitation of the Eastern Gas Board. In the afternoon a visit was made to the British Baking Industries Research Association laboratories at Chorleywood, Herts. Members were shown round the laboratories by Dr. J. B. M. Coppock, the Director, where they saw some of the work carried out by his staff.

Almost Completely Destroyed by bombs in September, 1940, the church of St. Saviour's, Brockley Rise, Forest Hill, has been rebuilt and now incorporates an up-to-date gas heating system. After various heating schemes had been considered it was decided to install a No. 2 GBA 7 Ideal boiler with a rating of 290,000 B.Th.U. per hour, serving 17 hot water radiators in the church. A time switch brings the boiler into use on Saturday evening and shuts it down again after evensong on Sunday. A thermostat automatically brings on the boiler should the temperature fall to freezing point. Gas convector heaters are fitted in the vestries for mid-week meetings.

The Industrial Research Committee of the Federation of British Industries estimates that during 1950-51, British industry spent about 50% more on research and development than in 1945-46. During 1950, 301 large firms spent £24 mill. on research and development, which chiefly originated within the firms; only between 1 and 2% was spent on outside or sponsored research. Since 1946 the majority of the 301 firms have increased the number of qualified staff employed on research and development work by an average of 52%, and floor space devoted to this work has increased by 54%.

I.G.E. Communications.—There are now available copies of the 'Presentation, Discussion, and Reply' relating to Communications Nos. 386, 391, and 394 presented and discussed on May 30 (Comm. 386) at the annual meeting, and on Novemuber 27 at the research meeting, 1951 (Comm. 391 and 394) of the Institution of Gas Engineers. These pamphlets are in the new format adopted by the Institution for publication of discussions. Copies are available from the Secretary, Institution of Gas Engineers, 17, Grosvenor Crescent, S.W.1, price 1s. 6d. each. The price of the original papers in blue book form remains at 1s. 6d. a copy.

AN AMBITIOUS GAS DISPLAY AT THE GREAT YORKSHIRE SHOW

THE North Eastern Gas Board staged a fine display at the Great Yorkshire Show at Harrogate. The Board reserved two adjoining sites between two of the major avenues. These consisted of 40 ft. by 20 ft. of tented shedding which housed the domestic display, and an open space 40 ft. by 60 ft. immediately behind, which was used for the agricultural exhibit; but although, in effect, there were two separate stands, by providing open access between, the public could pass right through one avenue to the other.

The domestic exhibit was designed in contemporary style with the express intention of creating an atmosphere of modernity. A model kitchen was included from which the home service section operated. In the centre a bright multi-coloured mobile with appropriate captions drew passers-by into the stand and directed them to the agricultural section.

The agricultural exhibit had the theme 'Fuel Efficiency on the Farm,' and in an attempt to attract attention to equipment that one must admit is not intrinsically attractive, the Board devised an original and striking entrance consisting of arrow-like shapes made of canvas stretched on tubular steel frames, together with a 40 ft. tubular steel mast topped by a large three-sided sign which led the eye down to the centre of the display. A Slade-Curran coke operated grass drier which was housed in a Dutch barn was the main feature. Flanking this on either side and housed under colourful canvas canopies were a bottle-washing machine and a variety of equipment used in poultry farming. The exhibit also showed greenhouse heating by gas, and the Gas Council's coke displays were included in the layout.

Next to the Royal Show, the Great Yorkshire is probably the biggest in the country, and but for the absence of cloven-hoofed classes through the foot-and-mouth disease restrictions, it is almost certain that the attendance record for the show would have been easily broken. The weather was perfect throughout the three days, and the total attendance of 60,000 was only 5,000 less than last year. It was estimated that well over 6,000 people passed through the Board's stand. At times the number of people and the number of enquirers were so great that the staff were hard pressed to cope with them. Certainly the exhibit was outstanding for the interest it created, not only in the appliances and equipment but also in the ambitious layout and striking design of the stand.

The design and layout were the work of the Board's publicity department, while the construction work was contracted out.

PERSONAL IMPRESSIONS OF THE AMERICAN TOUR

MR. H. R. HART, Commercial Manager of the East Midlands Gas Board, a member of the gas industry productivity team which recently covered 16,142 miles in 52 days in a tour of the United States, gives some personal impressions in the July issue of *Emgas*, house magazine of the East Midlands Board.

An extremely friendly relationship exists, he says, between the workers and their bosses—there they address each other by their Christian names but it is noticeable that the boss is never treated with any less respect through this custom, being generally well respected and popular. The average gas worker in America works hard, and his approach is abnormally friendly by our standards.

Mr. Hart had the opportunity of visiting quite a number in their own homes, where their living standards are very much higher than the equivalent Englishman's. The American has very similar characteristics to his English counterpart and even his speech is not as exaggerated as one sometimes thinks. Just as in England, he has personal worries over mounting taxation and such intimate things as his children's education.

The American executive is strong in character, obviously well qualified and very experienced and well balanced. Mr. Hart had rather expected to find a 'film' type of executive, but this is not at all the case. They are shrewd and not unlike 'top line' Englishmen.

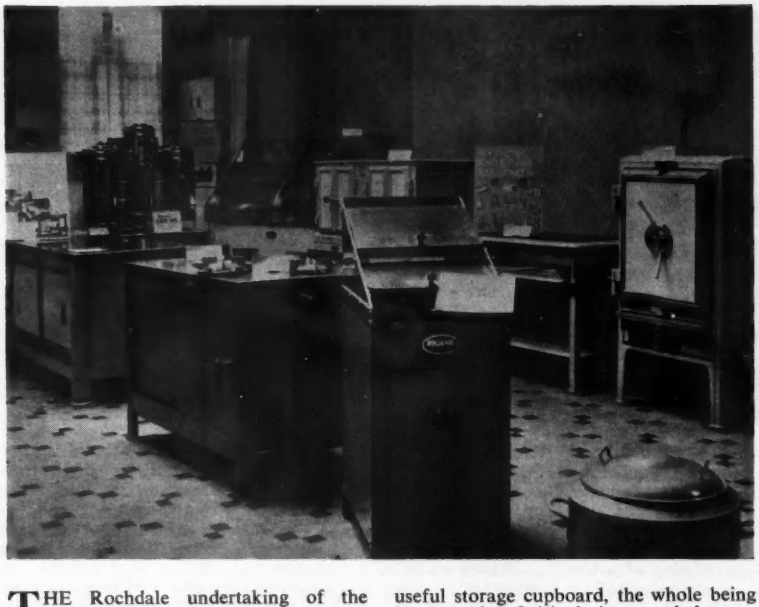
Instruments Rather than Gadgets

The standard of American gas appliances is very good. One sees on their cookers a tremendous number of gadgets, which are really misnamed as they are not mere trimmings for sales purposes but are the result of a sincere and sustained effort on the part of the manufacturer to release the housewife from all unnecessary drudgery. Organisation is first class and offices are fully mechanised, with a great deal concentrated into a small area. An interesting point is that most selling is done by outside agencies, while there is very little production by the utility. As yet there is no prospect of natural gas resources diminishing as more gas is discovered than the amount used each year, and there are known resources for the next 25 years. After that—well, the average American feels it will be somebody else's worry!

One final difference between American methods and our own is in industrial relations, where no national wage negotiations are carried out owing to the entirely different circumstances prevailing in places hundreds of miles apart. The unions negotiate direct with the individual companies and utilities.

Ascot Gas Water Heaters, Ltd., held their annual sports meeting at Alperton on July 12, when the Chairman, the Earl of Limerick, K.C.B., D.S.O., presented the President's Cup to this year's winner, Mr. F. Hawkins.

CATERING DISPLAY AT ROCHDALE



THE Rochdale undertaking of the North Western Gas Board, in conjunction with the Hygienic Stove Co., Ltd., of Huddersfield, recently held a successful display of large scale catering equipment at the Drake Street showrooms. Great interest was shown in the large variety of equipment on display, which covered appliances suitable for the small cafe or large industrial canteen.

Certain specially developed pieces of equipment were displayed which have been designed to offer the smaller catering establishment with limited room and capital, first class articles, embodying all the essential features necessary for quick and efficient service.

The 'Frywell' frying range is a notable example, constructed on the unit principle with no external connections. The sides are totally enclosed, forming a useful storage cupboard, the whole being handsomely finished in mottled grey stove enamel with silver blue door, or vitreous enamel; with aluminium topset and at a price that is reasonable when judged by today's standards.

Other exhibits which attracted attention were the 'Windsor' and 'Oxford' food steamers, 'Lincoln' hotcupboards, 'Frygienic' frying ranges, cooking ranges, boiling tables, and sterilising units. Examples of the firm's water boilers and café-sets were to be seen, together with the 'Teamaker' tea urn.

Of interest to the bakery trade was the 'Hygienic' baking oven. This oven is available in seven models, each incorporating thermostat and relay valve, pilot safety lighting device, with many other features that appeal to the discriminating baker or confectioner.

Free Dealing in Lead

PRIVATE trading in lead is to be restored as soon as the necessary arrangements have been made by the Ministry of Materials and the trade. Discussions with the trade are taking place and it is hoped that it will be possible to give effect to the decision on October 1.

Lord Swinton, Minister of Materials, told the House of Lords on July 28 that from the date of reversion, the private import of lead would be permitted and the London Metal Exchange would reopen for transactions in lead. The Ministry of Materials would cease to trade in lead except to the extent necessary to wind up its trading operations. He continued:

'In reaching the decision the Government has taken account of the improvement of lead supplies, of the importance for the export trade of enabling United Kingdom consumers to buy at fully competitive prices, the advantages to the balance of payments, and the position of sterling from the earnings which will arise directly and indirectly from the reopening of the international lead market in London.'

An official of the Ministry of Materials said it was intended that trading on the London Metal Exchange should be free from currency restrictions.

Film Projector Service

THE North Eastern Gas Board has three 16 mm. Ball & Howell projector units in constant operation giving film shows to schools, men's and women's clubs and institutes, etc. Each projector is equipped with its own library of Gas Council films, and use is made of the facilities offered by the Central Film Library and others to augment the Board's own films.

During the year April, 1951, to March, 1952, a total of 488 film shows were given by the Board's film units to a total audience of just under 40,000. The films most called for were 'Method and Madness,' 'The Nation's Wealth,' and 'The Manufacture of Gas.'

Joint Meter Reading

WRITING in the North Western Electricity Board's magazine, Mr. A. Heaton, the Board's Chief Accountant, expresses his disapproval of joint gas and electricity meter reading, experiments in which are being carried out in various parts of the country. He maintains that joint meter reading would increase costs, not reduce them, and would cause a major disturbance necessitating a complete redistribution of the sequence of meter reading.

Mr. Heaton bases his objection on the wide variety of meters in use. Joint meter reading would be easy if all consumers had similar meters. The proportions of consumers with both gas and electricity meters, with electricity meters only, with gas meters only, and the ratio of prepayment to quarterly meters, vary from district to district. There are also those who have both prepayment and ordinary meters. All those things, he observes, would add to the problems of the readers and staff.

BELFAST EXPLOSION: APPEAL DISMISSED

THE Ulster Court of Appeal on July 31 dismissed the appeal of the Belfast Corporation against a £2,011 award with costs in an action by Shell-Mex & B.P., Ltd., for damages arising out of a gas explosion (see *Journal* of February 6, page 350). Plaintiffs had alleged that the explosion was caused by a leaking high-pressure gas main which passed but did not supply the Shell-Mex premises.

The Corporation appealed on the grounds that there was no evidence of negligence in the maintenance of the gas main and that there had been misdirection by the trial judge; further, the Corporation was not responsible in law for the injuries or damages of which the plaintiffs complained.

Lord Justice Porter, in giving his judgment, observed that the real controversy was whether there was sufficient evidence to justify the answer of the jury to the question—'Were the defendants negligent in their maintenance of the main in not taking steps to prevent a fracture?' The answer of the jury was 'Yes.'

His Lordship said that Counsel for the Corporation had argued that the damage was caused not by any act or default of the Corporation, but by acts of the Harbour Commissioners in excavating the soil under the main in laying their sewer, with the result that the pipe fractured. Counsel had said the Corporation had no knowledge of the laying of the sewer; nor was it reasonable to assume they could have foreseen the laying of it.

Lord Justice Porter quoted an English case and said that in the present case there was the same want of reasonable care and foresight on the part of Corporation officials and the same absence of precautions. Once the main was laid across the road it was left to look after itself. There was no system of inspection. Not only did the Corporation do nothing but they did not attempt to do anything. There was other evidence of negligence and the appeal must be dismissed.

Gas in a

New Crematorium at Kingston-on-Thames

A NEW crematorium has been built at Kingston-on-Thames, and the West Surrey Division of the South Eastern Gas Board and Radiant Heating, Ltd., manufacturers of the cremators, were able to see the project carried through from start to finish.

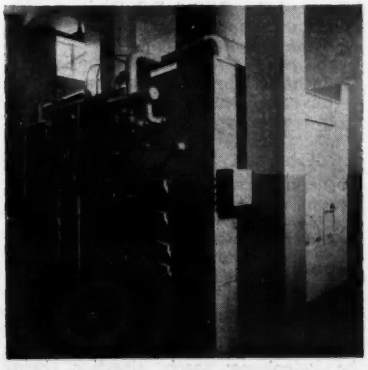
A 3-in. gas service connects with a 3,000 cu.ft. high capacity meter. A diaphragm control valve on the outlet of the meter, with air connection from the main air supply to the underside of the control valve, prevents gas reaching both furnaces unless the air fan is in operation. The air fan room is situated nearby and houses a 36-in. Type No. 8 Keith Blackman high efficiency blowing fan with the outlet trunking concealed in the floor from fan room to furnaces.

The furnace room contains two Radiant Heating cremators, with space for a third at some future date.

General information in regard to the cremators is as follows:

Burner Equipment.—Eight specially designed noiseless tunnel burners, arranged four on each side, six of which fire into the incinerating chamber and two into the ashpit chamber. The burners are fitted into combustion tunnels moulded into the side walls, each burner being supplied with the correct proportion of air/gas mixture from a mixing chamber fitted with Teleflex remote controlled gas and air cocks for accurately controlling the incoming gas and air.

General Construction.—The cremators are bricked with two courses of best quality firebrick, backed by a course of insulating brick. The brickwork is supported on mild steel plate superimposed on a heavy rolled steel fabricated base. The cremators are encased in steel sheets enamelled cream to match the interior decorations. The entrance end of the furnace is fitted with a refractory lined balance weight door, operated by Teleflex remote control in the committal chamber. The rear of the furnace is fitted with brick-lined hinged doors for gaining access to both the incinerating and the ashpit chambers. The floor of the incinerating chamber is solid for almost the whole of its length.



The two cremators with Teleflex air and gas controls and cream finished panel.

The spent products find their way out from the incinerating chamber to a preheating chamber immediately above, so that before leaving the furnace proper they pre-heat the necessary secondary air which is passed into the incerating chamber through a number of heat resisting air nozzles. The products leave the furnace at the top of the cremator, where an adjustable slide damper is provided, and then discharge into the main vertical stack.

The main gas supply to the furnaces is fitted with one diaphragm control valve, by which in the event of failure of the fan due to electrical or mechanical reasons the gas is automatically cut off.

Ease of Maintenance

Maintenance.—A striking feature of the cremators is the ease with which maintenance can be carried out. A brick-lined steel section is sunk into the top of the furnace and bolted to the roof, to facilitate raising of the preheater tubes, drop air pipes, and cleaning of the preheating chamber. The preheater tubes are protected by a course of bricks at the point of entry of the hot products to prevent rapid deterioration of the tubes. All burners are noiseless and fitted with cleaning points. The drop air tubes are fitted into heat resisting iron ferrules, thus enabling them to be replaced when necessary without the necessity of inevitable damage to the arch. These features mean less maintenance of the tubes, longer life of the brickwork, and a general reduction in maintenance, which will ultimately reflect in a reduction in cost per cremation.

Operation.—While furnace temperature is most important, it is not solely responsible for effective cremation. The essential factor is complete disintegration in its most rapid form, to bring about the final resolution. To obtain efficient operation, intelligent use of gas and air supplies is required. It has been found that it is undesirable to proceed too quickly in the initial stages, and for this reason moderate furnace temperatures are preferred at the commencement of a cremation. This fact, combined with control of the quantity of air, is most important in eliminating smoke.

Once the charge has commenced incinerating only heated air is used to resolve the contents to ashes. Any remaining parts are collected into the ashpit chamber and two concentrated burners are utilised to bring about final destruction.

Only in exceptional cases has it been found necessary to use all six burners in the main chamber at one time.

Operating tests with gas at 30/10-in. W.G. and air ½-lb. per sq. in., one cremation only, showed, with a case—6 ft. 7 in. × 1 ft. 10 in. × 1 ft. 8 in., a gas consumption of 800 cu.ft. (4 therms). With a case 5 ft. 10 in. × 1 ft. 6 in. × 1 ft. 6 in., second day, the gas consumption was 260 cu.ft. (1.3 therms); on the third day, with a case 5 ft. 10 in. × 1 ft. 6 in. × 1 ft. 6 in. the gas consumption was 205 cu.ft. (1.025 therms).

For the information in this article we are indebted to Mr. H. Capper, ASSOC.M.INST.F., M.I.S.I., L.I.M.

Gas Council Leaflet on Cremation

'OF the 130 cremators operated by the 62 cremation authorities in Great Britain, 106 are gas-heated.' So begins a new Gas Council leaflet entitled *Gas in the Service of Cremation.* The leaflet is worthy of special mention because of the very pleasing way in which the somewhat difficult subject has been dealt with. Choice of colour and layout strikes just the right note, combining smart and attractive appearance with the necessary quality of restraint.

The case for gas-heated crematoria is presented simply and adequately, and such ancillary uses of gas as space heating, automatic central heating, and water heating are briefly outlined.

The leaflet refers specifically to the Kingston crematorium and includes the illustration on the left of this page.

With the Gas Salesmen's Circles

A Review of Recent Papers and Activities

WITH almost all the industry's Salesmen's Circles reconstituted and working at full pressure, the time is ripe for another cross-section of current thought among the sales and service staffs. As in previous reviews of this nature, it should be understood that we make no claim to present a complete list or a full interpretation. We seek only to mention briefly a few of the addresses given during recent months.

It is perhaps fitting that we should start with the North Western Gas Board's Circle whose Annual General Meeting at Warrington on May 7 is claimed to be the largest Circle meeting ever held.

The meeting followed a visit to the two Warrington works of Radiation Ltd., and was addressed by Mr. Gordon Pascoe, Deputy Sales and Service Officer to the Liverpool Group, on 'Organisation After the Sale.'

At Liverpool, said Mr. Pascoe, 3,000 installation jobs, 1,000 gas leaks, and 1,200 trouble calls were dealt with weekly, and 11,000 visits made to customers' premises. The nerve centre of this service organisation was the telephone enquiry bureau, comprising a bank of lines having a separate exchange number and from which all calls were distributed by automatic equipment to 14 operators. Every month between 65 and 100 trouble and enquiry calls per 1,000 customers were received. Not only were the movements of fitters, equipped with motor-cycles, controlled by telephone, but customers were encouraged to come to the showroom to telephone their trouble calls direct to the bureau from kiosks in the showroom. The paper was interesting for its description of the degree of mechanisation in the offices and the elimination of unnecessary clerical work and filing.

Miniature Glories

From this picture of a large, intensely progressive undertaking, it is interesting to turn to the more miniature glories of the Isle of Wight Undertaking, whose history and development were described by the two District Managers, R. G. Barter and A. E. Matthews, in a paper to the Southern Area (Southern Section) Circle.

On vesting day four company-owned undertakings and two municipally controlled undertakings became amalgamated and a unified sales department was formed. The results included the establishment of a common calorific value, unification of sales policy, charges and technical training, interchange of staff and displays, centralisation of stores, the appointment of a home service adviser, and the active assistance, when required, of the Portsmouth and Southampton Undertakings. Seven showrooms in the Island are open daily and there are three branch showrooms.

The paper revealed that some 4% of the total gas sales are classified under industrial sales (this includes food processing and laundry work), and a number of bakers' ovens have been installed. Total gas sold in 1951 was 1,032 mill. cu.ft., consumption per consumer being 39,374 cu.ft. per annum.

Turning to home service, a recent meeting in the East Midlands area deserves mention. Miss M. M. Bedford, of Leicester, presented a paper to the Leicester and Northants Divisional Circle on 'The Home Help Who Lives Out.' She said that in Leicester 75% of the homes have gas cookers, 60% have washboilers, 10% have rings, 10% have fires, and 10% have water heaters. Every consumer was visited within a few weeks of the installation of a new appliance.

Home Service Training

Miss Bedford went on to describe the experience and the abilities which she felt a home service adviser should possess, and also emphasised the sales potentialities. The discussion raised several interesting points, notably on training. In answer to a question by the Chairman, Mr. J. B. Walsh, as to whether she advocated a full two-year course in domestic science subjects at an approved college, or alternatively whether she thought young girls of school certificate standard could receive adequate training within the industry, Miss Bedford stressed the desirability of the former, doubting the efficacy of obtaining a proper training on a part-time basis. Other speakers agreed with her, but pointed out that the difficulty in obtaining recruits might necessitate internal training. One speaker asked if there was any future for a housewife as a home service trainee, to which Miss Bedford replied that there was, and that in some cases a woman of mature years might be more successful.

Another meeting of this Circle heard a paper by Mr. R. G. Cockburn, of Northampton, on 'Large Scale Cooking Equipment.' One of the author's contentions was that there was a tendency to over-emphasise the specialist nature of selling in the catering field. There were many cases, he thought, which required painstaking enquiries and the use of technical matter in manufacturers' lists rather than specialist knowledge. At Northampton, it appeared, commercial enquiries were handled by the showroom staff or district representative, and only in the case of a very large installation was the manufacturer consulted. The argument was endorsed by Mr. J. Corrigan, Senior Group Manager at Northampton who, in the course of the discussion, commented that catering equipment was, after all, only domestic equipment on a large scale and could be handled by the ordinary representative.

A rather similar point occurred in the discussion which followed Mrs. Eileen Murphy's paper 'Selling by Showing,' when she presented it to the Sheffield and Rotherham Circle. Mrs. Murphy said that demonstrations on large-scale equipment needed special training, but thought that the home service adviser could do much with the small cafés and snack bars serving light meals, and also the small boarding house catering for 10-40 people; she felt this profitable field had been neglected in past years. At this point the Chairman, Mr. W. J. Steed, Divisional Sales and Service Manager, remarked that steps had already been taken for home service advisers to have some knowledge of large-scale equipment and a scheme of further training was envisaged.

Three Papers on Coke

And so to coke, about which no less than three papers were presented to the Southern Area (Southern Section) Circle at one meeting last month. The three authors comprised the staff of the Southern Board's coke exhibition vehicle, and someone had the bright idea of obtaining their views *en masse*. Mr. M. Rummey, who dealt with 'The Preparation of Coke,' is normally employed in the main showroom at Southampton, and his paper consisted of a brief outline of the manufacture of coke and its various characteristics, with particular reference to ash and shale. Mr. E. B. Smith is a member of the Bournemouth Undertaking and he continued the story by describing 'Appliance Design.' Lastly, Mr. W. Sullivan, of Portsmouth, contributed an excellent paper on 'Installation and Fault Finding,' the theme of which was that many customers, having unsuccessfully tried coke, pronounced it useless for their purpose, and subsequently turned to another fuel, have omitted to complain and thus give an opportunity for investigation. 'Too much emphasis,' said Mr. Sullivan, 'cannot be placed on the fact that correct choice of appliance and careful installation are factors which go far to produce efficient results.'

At a recent meeting of the South Western Board's Southern Divisional Circle, Mr. R. F. Knowlden, Coke Officer of the Bristol Sub-Division, presented the paper ('Coke and the Gas Salesman') with which he obtained second prize in the *Gas Service* National Competition for Gas Salesmen, 1951.

Mock Sales

Some months ago the Leicester and Northants Circle introduced into their meeting some mock sales. The idea also seems to have occurred to the Northern Gas Board Circle which recently presented a series of 'playlets' as a means of training sales and service staff. The playlets were six in number covering three imaginary situations: The consumer in the showroom, the fitter in the consumer's house, and answering the telephone; each situation being shown with both indifferent and good methods by the representative.

It was at this meeting that Mr. W. O. Kirkwood, Sunderland Divisional General Manager, spoke of the adverse effect on the attitude of salesmen brought about by national fuel crises, restricted sales promotion, and limitation of raw materials. This state of affairs, he said, had brought salesmen to a danger point whereby they were inclined to adopt a take it or leave it attitude. Many sales and fitting staffs had experienced no other conditions, and had no conception of the alert and courteous attitude that was necessary in pre-war days of keen competition. They, in the gas industry, depended for their sales chiefly on their own sales staff, while the electricity industry had a host of ready-made salesmen in the numerous retailers and large and small electrical contractors, keen because the retailer's financial reward was in direct proportion to his sales. Thus in their own field they had not one competitor but hundreds, unhampered by questions of 'policy' and in competition with each other.

No review such as this would be complete without some reference to the showroom and so we conclude with a note on a recent paper to the South Western Section of the Wales Gas Sales and Service Association. In 'Thoughts on the Showroom,' Mr. K. Bright, of Swansea, put forward his views on some of the features which go to make an efficient and attractive showroom, such as displays, use of colour, adequate lighting, efficient operation of demonstration appliances, and general atmosphere. One important point, raised by a speaker in the discussion, was the necessity for adequate ventilation in the showroom windows, to prevent steaming over.

Short-term Sales Courses?

At the end of his paper, Mr. Bright made an important and provocative point. The Certificate of Gas Salesmanship and Consumer Service provided the salesman with sound theoretical knowledge, and visits to manufacturers enabled him to study appliance construction and testing. But if he was to do his job properly, the salesman should receive technical data on electrical appliances, enabling him to compare tariffs, running costs, performance, and so on.

This question of training was further developed in the discussion when Mr. E. Ablett, Engineer and Manager at Swansea, asked whether there was any demand from members for some type of condensed or short-term course for salesmen. It was generally agreed that some such course was desirable, which would cut out or by-pass much of the preliminary work now considered necessary, and Miss Iris Jones, Home Service Adviser to the Swansea Group, pointed out the advantages of making such a course available to home service advisers, especially in the training of the use of appliances and in the technique of approach to the consumer. She did not think it fair to expect those already employed as salesmen to spend three or four years on a course.

Strange Argument

'IN the 1950's,' says one of the characters in J. H. M. Sykes' book 'Energy Retrospect,' 'it seemed as if everyone who was anyone—and, if my guess is right, a good many people who weren't anyone—had something to say about the proper way to use the country's energy resources.' A curious remark from someone who has added to the already long list of recent analyses of the national fuel problem, but then perhaps Mr. Sykes considers his case to be different. For although his book has only just been published, he purports to write from the rose-tinted year 1999, setting out the arguments for and against opposite views in imaginary conversations between a professor and two research students. The students have each written a paper on 'The Economic Problems of Energy in the 1950's,' a task requiring a fair degree of historical probing, and it is their conflicting views which, with the pontifical peacemaking of their professor, provide the thrust and parry and, therefore, the interest of the book. That the dice are heavily loaded is apparent from the outset. The author is an Associate of the Institution of Electrical Engineers, the foreword is written by Sir Arnold B. Gridley, K.B.E., M.I.E.E., M.P., and by the time one has got to page 2 it is quite obvious that the theme of the book is a defence of electricity generation and an attack on the present trend towards the wider distribution of efficient solid fuel-burning appliances.

The reader thus knows where he stands, but he may yet be unprepared for certain of the things which have happened in the progressive and (apparently) peaceful years between 1952 and the end of the century. The first great nuclear station began to produce energy in 1981, wind-power plants fed into the national network, tidal schemes were operating satisfactorily, and coal was treated only in chemical works to extract the by-products. On this wishful thinking is hinged the author's entire argument, and one can only wonder at the degree of optimism which expects readers to take seriously views built upon such airy premises. In fact, Mr. Sykes upsets his applecart by putting it before the horse.

And what about gas? As might be expected, the author has little time or space for it. He does, however, credit one of his characters with the following remarkable figures: 'If the primary object of the gasworks was taken as the production of gas alone, and all thermal losses were debited to this one process, then the production efficiency was about 47%. Incidental losses in transmission of gas meant that it came to the consumer's premises carrying an efficiency of about 39%, and then there was about 50% efficiency of utilisation. In consequence, about 19% of the heat in the coal appeared in the room where the gas was burnt.' Mr. Sykes, on this entirely faulty basis, goes on to say that this gave about the same efficiency as electricity, but that a house had to have electricity for other purposes. Turning to solid fuel-burning appliances in 1950, he advances an efficiency of 40%-50% for room heating, but presents a laboured case to show how their use was of short-term benefit, mainly because of a 20% energy wastage due to transportation; this he compares with the large power stations, built adjacent to the coal mines. He again tilts at improved grates by arguing that (a) no labour—particularly in the foundry—was available to make them, (b) steel was in short supply, and (c) the building trade would have had to divert labour to fit them and enlarge storage accommodation.

What, then, is his solution? Broadly it appears to be intensification of research into wind and tide utilisation, increased use of off-peak electricity, the fostering of a firm and extensive network of electrical energy distribution, increased efforts to reduce expenditure in man-hours and money on maintaining unnecessary transport of fuel, and the stressing of the national advantages of electric heating with substantial reductions in tariff to people who installed thermostatic and time-controlled equipment.

We have suggested that Mr. Sykes' arguments are based on certain colourful assumptions (such as a falling population) which destroy any desire to take him seriously. But that does not mean that his book is not interesting, provocative, and readable. It is all of these, and is in the nature of a fighting reply to Messrs. Nabarro and Alport, who have championed the wider distribution of improved solid fuel appliances. It is published by Garraway, Ltd. (of which firm Mr. Sykes is a Director), price 6s. 6d.

The Instrument Society of America is sponsoring a national conference and exhibition to be held at Cleveland, Ohio, on September 8 to 12. The gathering will include the American Institute of Physics, the American Society of Mechanical Engineers, the American Institute of Electrical Engineers, the Institute of Radio Engineers, the Cleveland Physics Society, and the Scientific Apparatus Makers' Association. An attendance of over 10,000 is expected.

Fuel Efficiency Exhibition.—At the invitation of the Directors of Provincial Exhibitions, Ltd., a meeting was held in the City Hall, Manchester, recently to discuss the presentation of a further Fuel Efficiency Exhibition in November, 1953. Representatives of many important industrial firms were present, the majority of whom expressed entire satisfaction with the results of the last exhibition, and in view of their promised support it was agreed to proceed with the arrangements. To help in this connection, an Advisory Committee was nominated under the Chairmanship of Mr. F. W. Woodfield, of Babcock and Wilcox, Ltd. On this assurance, the organisers are going ahead with their plans, and feel certain that this, the second Fuel Efficiency Exhibition, will be even more representative, and a greater success than before.

COMPOSITION OF COAL TARS

By R. FORSDIKE,
St. Anthony's By-Products Works, Newcastle

Paper to the Northern Junior Gas Association

THE method of production of coal tar has an important bearing on its quality and it is the purpose of this paper to set out some of the salient characteristics of crude tar of coke oven, horizontal retort, vertical retort, and water gas plant origin.

The following table gives a series of analyses of tars of various types. The figures are all calculated to give the yield from 1 ton of tar of 5% water content. A working loss of 2½% is allowed and the pitch is corrected to a standard hardness of 71½°C. (Kraemer and Sarnow test):—

	Coke Oven		Horizontal Retort			Vertical Retort		Water Gas
Specific Gravity (5% water)	1.183	1.185	1.184	1.149	1.166	1.109	1.102	1.070
Benzole .. .. (gal. per ton)	0.64	0.55	1.61	1.84	1.43	1.2	0.97	5.0
Solvent Naphtha .. (gal. per ton)	0.18	0.23	2.3	0.92	0.95	0.99	0.62	3.0
Heavy Naphtha .. (gal. per ton)	0.64	0.69	0.44	2.23	2.6	3.27	3.37	4.0
Crude Tar Acids .. (gal. per ton)	1.38	1.83	4.05	4.4	4.39	10.9	14.18	*Nil*
Creosote .. .. (gal. per ton)	56.9	50.11	55.55	67.01	56.17	72.95	70.8	105.0
Pitch .. .. (cwt. per ton)	12.91	13.47	12.56	11.48	12.32	10.57	10.47	7.0
Naphthalene .. (lb. per ton)	90.0	113.0	172.0	91.0	107.0	56.0	25.0	15.0
Specific Gravity of Creosote ..	1.056	1.060	1.047	1.048	1.060	0.996	0.995	1.020

Removal of Water

Although the figure of 5% water content has been used in these analyses, deliveries of tar to the by-products works frequently exceed this limit, and it is undesirable for a number of reasons. Quite apart from the cost of transporting this water, there is the trouble and cost of its removal from the tar, and as most of the water is removed by distillation a residue of ammonium salts remains in the tar. The chloride dissociates on heating with the production of free hydrochloric acid and a special precaution has to be taken to minimise the corrosive effect of this free acid by neutralisation. This involves the continuous injection of a solution of sodium carbonate into the tar feed of the continuous tar still.

The main factors which appear to influence the quality of tar produced by the various methods of carbonisation are:—

(*a*) Temperature of carbonisation.

(*b*) Time of carbonisation of the retort or oven charge.

(*c*) The free space above the charge in the retort or oven.

Generally speaking, the higher the temperature and the greater the time the tar is in contact with the hot surfaces of the oven or retort, the more aromatic in nature is the tar produced. Aromatic oils generally have higher specific gravities than aliphatics, and an examination of the table will show that there is a marked increase in specific gravity as we progress from vertical retort tar to horizontal retort tar and then to coke oven tar.

Influence of Free Space

The influence of the free space above the charge may be illustrated by the fact that the light oils in horizontal retort tars are considerably greater in quantity than in the other types of tars, and this is probably due to the greater amount of cracking in the larger proportion of free space of this type of carbonising vessel. This influence of the free space may be further shown by the fact that with the introduction of more modern methods of charging coke ovens and horizontal retorts, resulting in greater charges and hence less free space, an increase in the paraffin compounds in tars became apparent, accompanied by a fall in specific gravity.

Examination of the quality and quantity of the by-products from these various tars confirms the gradation of aromatic properties as the following examples will show:—

Naphthas.—From vertical retort tar the yield is high, but the paraffin content of the fraction is of the order of 15%. The yield from horizontal retort tar is also high, but the paraffin content is only about 6%. In coke oven tar the naphthas are very low, but the paraffins are as low as 2%. There is little difference in the degree of unsaturation of the three types of naphtha.

Tar Acids.—Vertical retort tars contain six to seven times as much tar acids as coke oven tars and three to four times as much as horizontal retort tars. The quality of the tar acids, however, is very much poorer in vertical retort tar oils. The phenol content is only about 6%, cresols are present only in small amounts, and the remainder of the acid is high boiling and—a very bad feature from the marketing angle—it gives a pink or red colouration to 'white' disinfectant fluids made from them. The phenol content of horizontal retort tar acids is about 25% and that from coke ovens about 18%. Both types of acids contain substantial quantities of cresols.

Yields of Aromatic Compounds

Naphthalene.—The naphthalene content of vertical retort tar is usually very low, in the range 0% to 3%, while coke oven tars contain about 5%, and horizontal retort tars about 7%. The yields of other poly-nuclear aromatic compounds such as anthracene and phenanthrene also follow the same general pattern.

Oils.—The paraffin content of the oils which boil above the naphtha range also shows a decrease on passing from vertical retort to horizontal retort and coke oven tar, typical figures being 12%, 0.9%, and 0.3% respectively.

Pitch.—From an examination of the table it will be seen that in general the pitch content of vertical retort tars is lower than that of horizontal retort tars, which is in turn lower than that of coke oven tars. Generally speaking, the appearance of the pitch also shows a gradation, being very bright in the case of vertical retort tar pitch and dull in most coke oven tar pitches. Anomalous pitches, however, do occur in coke oven tars, some of which are quite bright in spite of a high pitch content. The brightness of the pitch is related to its free carbon content or, as it is better described, matter insoluble in toluole, bright pitches having insolubles of the order of 5% to 10% and dull pitches about 25%.

Water Gas Tar

Water gas tar, because of its very different method of production, should of course be considered quite apart from the other types of tar. Its characteristics are briefly as follows:—

Specific Gravity is low, but this is not so much due to a high paraffin content, but to high naphtha and creosote content and low pitch content.

Naphthas.—The naphtha content is very high, usually of the order of 12%-15%. The benzole fraction is remarkable for its high toluene content.

Tar Acids and Tar Bases are completely absent.

Pitch is usually of the order of 7-8 cwt. per ton. It is usually a very bright pitch of very low free carbon content.

Naphthalene is present only in small amounts.

Coke from the Domestic Angle

By H. A. BARRON,
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Paper to the Midland Junior Gas Association

ONE of the first coke fires handled commercially by the Birmingham Gas Department, was the 'Glow Worm.' This fire had a big depth of bars at the front; indeed, it was more like a front grid than what we know as front bars to-day. A number of these 'Glow Worm' fires were fixed in the living room of some flat-roofed houses in the Sheldon area, and although not very pleasing looking, they burned remarkably well, and some are, I believe, in use to-day.

Just over 20 years ago, Sidney Flavel & Co., Ltd., came into the market with the first of the 'Metro' range of gas-ignited coke fires. These early models were handsome and were certainly what is known as 'free burning,' having little or no air control. The one-piece bottom grate, which fitted into a surrounding framework, had a pronounced rake or slope from front to back, enabling a generous amount of coke to be kindled. It gave a large radiant fire of a satisfying and brilliant character, but, of course, to maintain this it had to be fed at very frequent intervals. One good feature of the 'Metro' was the comparative long life of its bottom grate. Providing no undue accumulation of ash was allowed, I have known this bottom bar to last for many years in daily use.

A 'Best Seller'

In the early 1930's, a coke fire which rapidly became a 'best seller' was brought out—the 'Eagle' No. 1052. This had two permanent front bars, again designed to give extra depth of fuel; it had an atmospheric burner for gas-ignition, and, an important new development, it had a vitreous enamelled front, a great improvement from the housewife's point of view, because it merely had to be wiped and not blackleaded. The 'Eagle' fire gave a fuel bed depth of about 4 in. at the front and 8½ in. at the back, the latter depth depending naturally upon the slope of the bottom bars. It had a slide front control, rather of the 'hit or miss' type.

It was of robust construction and attractive design and quickly attained a high degree of popularity. Made in three sizes, 14, 16, and 18 in., it was easily fitted into practically every type of grate without structural alteration. What was important, from our point of view, was its adaptability to the register back boiler grate.

In fixing a coke fire to a back boiler it is desirable that the bottom of the flue under the boiler should be about 1 in. above grate level. This tends to wedge the coke and prevent it falling into the space under the boiler, and with the 1052 it was always possible to get sufficient rake for this to be accomplished.

For years past, copper has been used as the material for back boilers, particularly where the nature of the local water was such that, with iron, comparatively rapid rusting was probable. Serious doubt was felt as to whether, where copper was installed, coke could be safely used as a fuel. It was supposed to facilitate external corrosion so that a leaky boiler would soon eventuate. But from extensive tests carried out over a continuous burning period of nearly 12 months, with a number of copper boilers, it was found that none showed sufficiently marked corrosion to warrant any undue alarm; indeed, a boiler tested at the same time with coal showed slightly more marking than those burning coke.

During the next few years there was a gradual change in the design. The improvement in the quality and combustibility of the coke made it no longer necessary to have such a deep fuel bed or to provide firebricks with special insulating properties. This led to the introduction of the barless fire. Among those that were immediately popular with the public were the Brockhouse 'Bulldog' and 'Beacon' and the 'Eagle' No. 4052, although the latter fire had a particular drawback in that it was difficult to remove the accumulation of ash from under the firebars. This defect was, however, later remedied by making the entire front removable.

All these fires gave a fuel depth of about 2 in. in front and 8½ in. at the back, and where it was still felt that a larger fire was required it was possible by the addition of what was known as a 'deepening bar' to increase the fuel charge by about 2 lb., and the combustion rate from 2½ to 2¾ lb. per hour with the slide damper control open.

About this time also a change was made in the gas ignition burner from an atmospheric to a luminous flame. The efficiency of both types of burner is approximately the same, but the advantage of the luminous burner is that it has a stable flame, whereas the atmospheric burner always had a tendency to light back; also, it was fixed further from grate level and was therefore more accessible.

With the threat of the second World War in 1938, there came a standstill period in the development and design of the coke fire, and it was not until 1945 that further progress was possible. In that year came the 'controlled' or 'all-night' burning fire. Close regulation of the combustion rate is made possible by positive control of air to the fuel bed and by insulating the front of the fire with a lining of firebrick. Precision control makes it possible for the fire to remain alight, with the damper in the closed position, for about four to five hours without re-fuelling, and the amount of heat given to the room per pound of fuel burned—that is, the efficiency—is substantially greater than with open coke fires of previous designs. In addition, this higher efficiency is maintained even at the lowest combustion rate, research having overcome the difficulties of obtaining a low rate of burning, when required, without loss of working efficiency.

The 'All-Night' Fire

One of the first of these 'all-night' burning fires was the 'Eagle Sutton' No. 2. This model incorporates a cast iron plate, normally concealed behind the front of the fire front, which can be raised to give unattended burning overnight. The rate of burning is reduced to a very low level, but sufficient heat is generated so that the room remains comparatively warm.

The efficiency, or success, of this type of fire from the consumer's point of view, is dependent upon a number of factors. For one thing, many so called 16-in. fireplace openings vary by as much as ¼ in., with the result that in such cases, there is a leakage of air either side of the fire opening. I know that a number of the manufacturers of this type of fire advocate in any case, filling-in the sides with fire cement, but this method is, in my opinion, never very satisfactory for long, as the filling eventually cracks and tends to fall out. The burning period of the fire can also be determined by the prevailing weather conditions, and this led us to prefer to call it the 'long burning' rather than 'all-night' type.

With the 'Sutton' No. 2, the raising of the concealed front plate, besides increasing the capacity of the fuel bed, also formed a shield which deflected air from the fuel bed directly into the chimney. In this way, with the air control com-

pletely closed, the rate of burning is reduced to a very low level. Another advantage of this shield or front plate is that if the house is left unattended a measure of protection is afforded from falling fuel, thus mitigating the risk of fire.

Another product of the 'Eagle' range of coke fires is the 'Fulham.' This has a squarer and severer looking front than the 'Sutton.' Like the latter, it has a one-piece bottom bar, and the firefront is backed by a refractory lining. The air to the fuel bed is controlled by a damper on the hook-on ashpit front, and the contact faces of the front and the damper are surface ground; the fire, properly fixed, gives complete control of the rate of burning.

For 'long period' use the 'Fulham' is provided with a black vitreous enamelled plate, with two pegs on the bottom which engage in the deepening bar holes on the top of the fire front and hold it securely in position. The side flanges of the plate rest against the firebrick and when in use, like the 'Sutton' front plate, increase the fuel holding capacity of the fire.

In the immediate post-war range of coke fires, mention must be made of the 'Chevin,' designed by Bratt Colbran, Ltd. Apart from the difference in the design of the fire front, this is similar in construction to the 'Eagle' models, with a one-piece bottom bar, front firebrick lining, and a hook-on surface-ground ashpit front which gives infinite variation of air control. The 'Chevin' Model A has a single deepening bar dowelled into the top of the fire, removable if not required, and model B has an additional top front plate, vitreous enamelled to match the finish and colour of the fire, which is easily detachable and can be replaced at a higher level to provide sufficient fuel for long period burning. Both models have proved very popular with the Birmingham consumer, especially in the bronze lustre finish.

During the last two or three years we have had numerous additions to the ranks of the 'A. B,' and 'Sofono' types. All are designed so that the rate of burning can be regulated more or less exactly by the simple adjustment of a knob, or something equivalent; few are fitted with the gas-ignition burner, mainly because all, or practically all, are claimed by their makers to remain alight from one year's end to another. This may sometimes be difficult if one is using gas coke as the only fuel.

Correct Installation

The satisfactory functioning of every kind of domestic coke burning appliance is dependent on correct installation and efficient methods of operation. For ordinary space heating, inset open coke fires can easily be fitted into most existing fireplaces without changing the firebrick back, provided this back is in reasonably good condition. With the old type of register grate with a cast iron interior, a coke fire can usually be fitted provided a new firebrick back is fixed in place of the old one.

A coke fire should always be fitted strictly in accordance with the maker's instructions, taking particular care to avoid leakage of air into the ashpit by ensuring that (1) the grate is the correct size for the fireplace opening, and (2) a small clearance of approximately ¼ in. is allowed around the bottom grate to avoid distortion due to expansion. Where parts of the grate support have to be inset into the hearth, the greatest care should be taken to ensure that they are firmly located The frame which supports the fuel bars is adjustable to variations in the width and depth of the firebrick back, and can usually be adapted to the size required.

I have a coke fire, fitted in my house 20 years ago, which is still in daily use and has the original bottom bars. Admittedly these are of heat-resisting cast steel having a high chromium content, but they have given approximately 70,000 burning hours and are still undistorted because they have always been kept free from ash accumulation.

The height of the fireplace opening should be 24 in.; certainly a minimum of 22 in. Complaints from consumers that a coke fire does not give a good heat can often be traced to the fire opening being under these measurements. Any space heating appliance should be capable of heating the room to 65° F., even on the coldest day.

The chimney serves two purposes; it carries away the products of combustion, and by its ventilating action it causes a current of air to move through and across the top of the coke and thus increases the rate of combustion. As a general rule, wherever a chimney has been satisfactory with a coal fire it will be satisfactory with a coke fire. Cases where the chimney smokes, or is in any other way unsatisfactory, can usually be traced to faulty design. For example, sudden changes in the cross-section of the chimney should be avoided.

With the basket type of coke fire, as fitted in the reproduction Tudor or Elizabethan brick or stone fireplace, the combustion rate varies considerably according to the dimensions of the recessed opening, and also to the gather of the chimney. In general, a basket type fire should not be fitted into a chimney opening which is more than 2 ft. 6 in. high. The front of the basket must be behind the chimney opening. Complaints of poor combustion can usually be cured by fitting a metal hood over the fire at the level of the top of the recess.

What is known as 'down draught' can be either persistent or spasmodic, and may be caused by wind being deflected down the chimney from higher parts of the same or adjacent building, or from nearby overhanging trees.

The only satisfactory remedy is to increase the height of the chimney until the outlet is above all adjacent structures. Some types of cowl are effective in certain cases, but cannot be relied upon to cure the nuisance in all circumstances.

Slow Combustion Stove

For many years, in many lands, the slow combustion stove has been used and appreciated, and although national characteristics have left their mark on its outer appearance, the fundamental principles remain unchanged. Its main advantage —in the variable British weather no less than in the colder climates—is that it can be left unattended for a considerable time. The stove needs only the minimum of attention; once the fire has been lighted using No. 3 coke nuts and the air control properly regulated, it can be left for several hours.

It needs refuelling only twice a day, and if replenished last thing at night and the damper set for slow burning, next morning there will be a warm room; after gently loosening the ash in the firebed bottom, and opening the air control fully, the stove is ready to give its maximum heat in a very short time. A correctly fixed, and properly functioning continuous-burning openable stove ensures that the walls stay warm.

With the exception of special designs of fireplace requiring inset types of stove, the majority are installed in front of the existing fireplace; hence the name 'free standing.'

The total heat output of the average size slow combustion stove, including radiated and convected heat, is easily capable of heating a room of 3,000 cu. ft.

Since the end of the war, Government sponsored housing schemes have been the means of popularising this form of space heating, and although not all burn the fuel for which they were intended there must be some hundreds of thousands of these stoves fitted throughout the country, many, of course, also with a boiler for domestic hot water.

The hot water requirements of most households can be obtained from the smallest recommended size of boiler, which has a heating surface of 2 sq. ft. and a fuel capacity of 0.6 cu. ft., which, with No. 3 coke, enables the fire to remain alight overnight. The provisions made for grate area, spacing of firebars, etc., ensure that, providing the correct size of fuel is used and the working instructions are carried out, constant hot water can be obtained efficiently and cheaply.

It is particularly important in fixing a coke boiler to see that any air leakage is avoided, as this cools the flue gases and so reduces the chimney draught. Care should be taken to see that all joints between the boiler and the chimney are tight. Flues and chimneys should be kept clean and free from deposit. Although primarily designed to burn coke, the domestic boiler will, and indeed should, consume the household refuse, and this will, of course, mean periodical sweeping.

The apparatus is sold mainly for one purpose—to give hot water. When used for space heating, with the fire exposed, its efficiency falls rapidly. This is due partly to the radiation of heat to the kitchen and partly to the cooling action of the air drawn in. Keep the fire free from ash; the ashpan should be emptied sufficiently so that air can always reach the grate bottom. Some boilers are fitted with a shaking grate which simplifies the removal of ash. Otherwise a thin poker should be used. On no account should the fire be poked from the top, or the fuel surface disturbed, as this upsets the combustion conditions. The damper should be set to give the minimum possible combustion rate; the best position for the damper can only be obtained by experience—it will help if it can be marked to assist adjustment, but it should be remembered that different settings will obviously be required for different atmospheric conditions. If these factors are kept in mind, clinker will be a minor trouble; it is usually caused by forcing the draught or using an incorrect fuel.

Considerable improvement in outward appearance and design has been made in the domestic boiler since the end of the war. Practically all are now obtainable in vitreous enamel finish, usually grey-mottled or plain cream and black.

The range of self-setting or free standing cookers continues to increase, but all can be classified into one of two groups: Heat storage cookers which rely on burning a small amount of solid smokeless fuel continuously, and storing the heat thus generated in heavy metal castings encased in exceptionally thick and efficient heat insulation. In this type, the rate of burning is always controlled automatically by means of a thermostat. Secondly, continuous burning insulated cookers, which have been introduced during recent years to satisfy a demand for a moderately priced article.

None of the solid fuel cookers on the market today is cheap and fuel economy, good cooking results, and an abundant supply of hot water—the average household uses about 250 gal. a week—can only be obtained by following the maker's instructions. The fire should be kept clean and bright, and the ashpan emptied at least each morning and night. Keep the dampers, firedoors, and hotplate lids free from dust or grit with a wire brush, and clean the flues to the oven boiler, and chimney at least once a month. All types of these cookers give excellent results from the burning of No. 3 coke nuts.

THE VALUE OF TECHNICAL CONTROL

By J. NEWMAN,
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From a paper to the Wales and Monmouthshire Junior Gas Association

THE working results, prices, etc., given in this paper are applicable to the Pontypool undertaking. Run-of-retort coke has been taken as 82s. 5½d. per ton, which has been derived from the quarterly carbonising figures, which show a breeze content of the coke of 12%. Value of breeze 35s. per ton. Value of coke 88s. 10d. per ton.

A carbonising plant with badly controlled producers cannot be expected to yield good carbonising results, and low thermal yields can often be traced to neglected producers.

With present prices of run-of-retort coke at 82s. 5½d. per ton, it is very important that the fuel consumption of the producers be controlled within optimum limits. Regular control and gas analyses correctly interpreted can do much to reduce the cost of producer gas. By allowing the CO_2 content of the producer gas to increase by 1%, this raises the fuel consumption of the producers by 2.65% and the producer fuel per ton of coal carbonised by 0.4%.

With run-of-retort coke at 82s. 5½d. per ton, this is equivalent to an increased cost of approximately 4d. per ton of coal carbonised, which, on a works such as Pontypool carbonising 80,000 tons of coal per annum, is equivalent to a total increased cost of £1,430 per annum.

A further obvious loss in producer efficiency arises from pulling out combustible matter during clinkering periods. Although some loss is unavoidable, it can be kept to a minimum by proper training and supervision of the producer men. If the 'ashes' pulled out during clinkering amount to 20% of the fuel charged, and the ash content of the run-of-retort coke is 12%, then 40% of the 'ashes' drawn out is equivalent to 45% coke.

Assuming 3 cwt. of coke is consumed in the producers per ton of coal carbonised, then the weight of 'ash' drawn out per ton of coal carbonised is ⅜ cwt. Of this, 0.27 cwt. is coke. At 4s. 1½d. per cwt., this coke loss is equivalent to just over 1s. 1d. per ton of coal carbonised—*i.e.*, on a works the size of Pontypool this amounts to over £4,000 per annum. A good case can be made out for either hand picking the 'ashes' on a small works, or some form of ash-coke separating plant on a large works. Thus, whatever method is used, it is good practice to minimise this loss by regular weighing and analyses of the producer ashes.

It is impossible to obtain correct carbonising temperatures if the producers are not maintained in first class condition but, assuming that the producers are maintained clean and properly adjusted, a great deal of efficiency can still be lost through mediocre temperature control. Regular checks on the volatile of the coke produced will be more than compensated by increased thermal yield and reduced cost per therm into holder.

For example, if the volatile content of the coke is allowed to rise by 1% above the optimum, then a gain has been made in coke produced per ton of coal and a loss in the thermal yield per ton. This extra coke yield of 1% on, say, 15 cwt. of coke and breeze made is 0.15 cwt. per ton of coal, or approximately 7.5d. per ton of coal carbonised. The decrease of 1% in thermal yield on, say, 75 therms per ton is 0.75 therm, or a loss with gas selling at 20d. per therm of 15d. per ton of coal carbonised. The net loss due to this 1% extra volatile in the coke is 15d. − 7.5d. = 7.5d. per ton of coal carbonised, or £2,500 per annum.

Incorrectly set dampers can cause a considerable loss in producer fuel. Waste gases passing to the waste gas flue containing 1% of unburnt CO can mean an increase of 5% in the coke used on the producers (or an increase of 0.8% in the coke used per ton of coal). This is equivalent to increasing the price by 8d. per ton of coal, with a resultant increased cost per annum of £2,680.

Excess oxygen in the waste gases causes a worsening of producer figures. For example, if the CO_2 in the waste gases is allowed to decrease from 18% to 15% due to excess air, 4% of the fuel to the producers has been wasted. In effect, 0.12 cwt. of extra coke has been used per ton of coal carbonised. This is equivalent to 6d. on every ton of coal carbonised and results in an extra cost of £2,000 per annum.

To obtain correctly controlled plant, instrumentation is important and, bearing in mind the money value of such losses as mentioned in this paper, the costs of such instruments as CO_2 recorders, Arkon pressure recorders, etc., can be almost negligible. Spot Orsat tests once in a while are no substitution for continuous CO_2 recording and can often be quite misleading.

Requirements for an Official Testing Station

By E. L. ROBSON,
Northern Gas Board

Paper to the Northern Junior Gas Association

THE Gas (Testing) Regulations, 1949, require that area boards 'shall provide such premises, apparatus, and equipment for carrying out such tests as may be specified in directions given by the Minister and shall maintain the same to the satisfaction of the Minister.'

There are no hard and fast rules laid down by the Ministry of Fuel and Power as to where a station should be installed. Each undertaking is dealt with separately and many factors are considered before a decision is reached. However, in general, statutory undertakings listed before vesting date and producing approximately 1,000 mill. cu.ft. per annum and over have to provide one of these official testing stations.

The main requirement for the siting of the official test room is that it should have the greatest possible protection against the effects of varying exterior temperature which may cause a derogatory effect on the accuracy of operation of the testing instrument, and the following suggestions have been issued by the Ministry as a guide which, if followed, will cause the least possible delay in approval when final details are submitted.

As the room, especially on a gasworks, will in most cases be part of an existing building, one should be chosen having a northerly aspect and as far as possible be completely protected from direct impingement of the sun's rays. A basement to a multi-storied building is particularly suitable, having three of the walls and the ceiling isolated by other rooms from exterior temperature. The room should also be outside the range of vibrations from heavy machinery and it should not be subject to infiltration of dust or fumes.

Such a room, however, is not always available, and in these circumstances the use of a single storied building may be approved by the Minister, provided he is satisfied that it is sufficiently overshadowed by other buildings or that effective structural measures have been taken to mitigate exterior temperature effects.

Such a room should be sufficiently large to permit at least a passageway to be interposed between the testing room and outside walls other than northern aspect, or, if this is not possible, cavity walls of not less than 16-in. width overall should be provided. The roof should be provided with an external false roof or an internal false ceiling, so that a free circulation of air is permitted between the two parts.

Dimensions

The minimum floor space necessary for the test room housing the recording calorimeter alone is 100 sq. ft. and, if a Boys non-recording calorimeter is also to be used, an extra 75 sq. ft. of floor area is required. The headroom varies from a minimum of 9 ft. 6 in. and where a Fairweather recording instrument is installed a minimum of 11 ft. 6 in. is recommended.

Ventilation and heating play an important part in the maintenance of an even temperature within the room and the following are a few important points when considering this item. Steam, hot water, or gas radiators may be used for the purpose, but in each case must be thermostatitically controlled. If gas heaters are adopted, flues must be provided for the waste gases, and in each case where wall radiators are adopted the incoming air should be led to louvred type ventilators situated directly behind the heaters and preferably baffled in front. The vitiated air can then be allowed to leave either through wall ventilators at ceiling level or through gaps in the ceiling to the ventilated roof space.

Natural lighting can be provided by windows in the north wall only, and if artificial lighting is also used the units should be placed so that the instrument is not affected in any way by radiant heat. Fluorescent lighting seems to be the best type for this purpose.

Windows are not allowed to play any part in the ventilation of the room, and, therefore, should be of the fixed pane type. If there is any doubt regarding the adequate circulation of air in the room, forced draught methods are advisable, either in the form of an electric exhaust fan or by placing the outlet duct over the burners installed for clearing the service pipe to the instrument.

The length of service main from the tapping point to the instrument should be kept short and, if possible, be within such a length that not more than 10 cu.ft. of gas need be burnt in the testing place to clear the service pipe within ¼ hour. An example of this is a 1¼-in. pipe 200 ft. long.

Howdon Test Room

So far, I have dealt with the desirable requirements for the building, the heating and ventilation, etc., and I think it would now be advisable to follow the various points as they appeared during the installation of an official test room at the Howdon gasworks of the Newcastle division.

It was decided to build an additional room on to the existing meter and distribution house. This position holds the following advantages:—

(1) One of the outside walls has a northerly aspect and, therefore, natural lighting could be used.

(2) The room in general has a northerly aspect and the west side is partly screened by a purifier shed.

(3) The east and south walls of the room are internal walls and, therefore, no special construction of these walls was necessary.

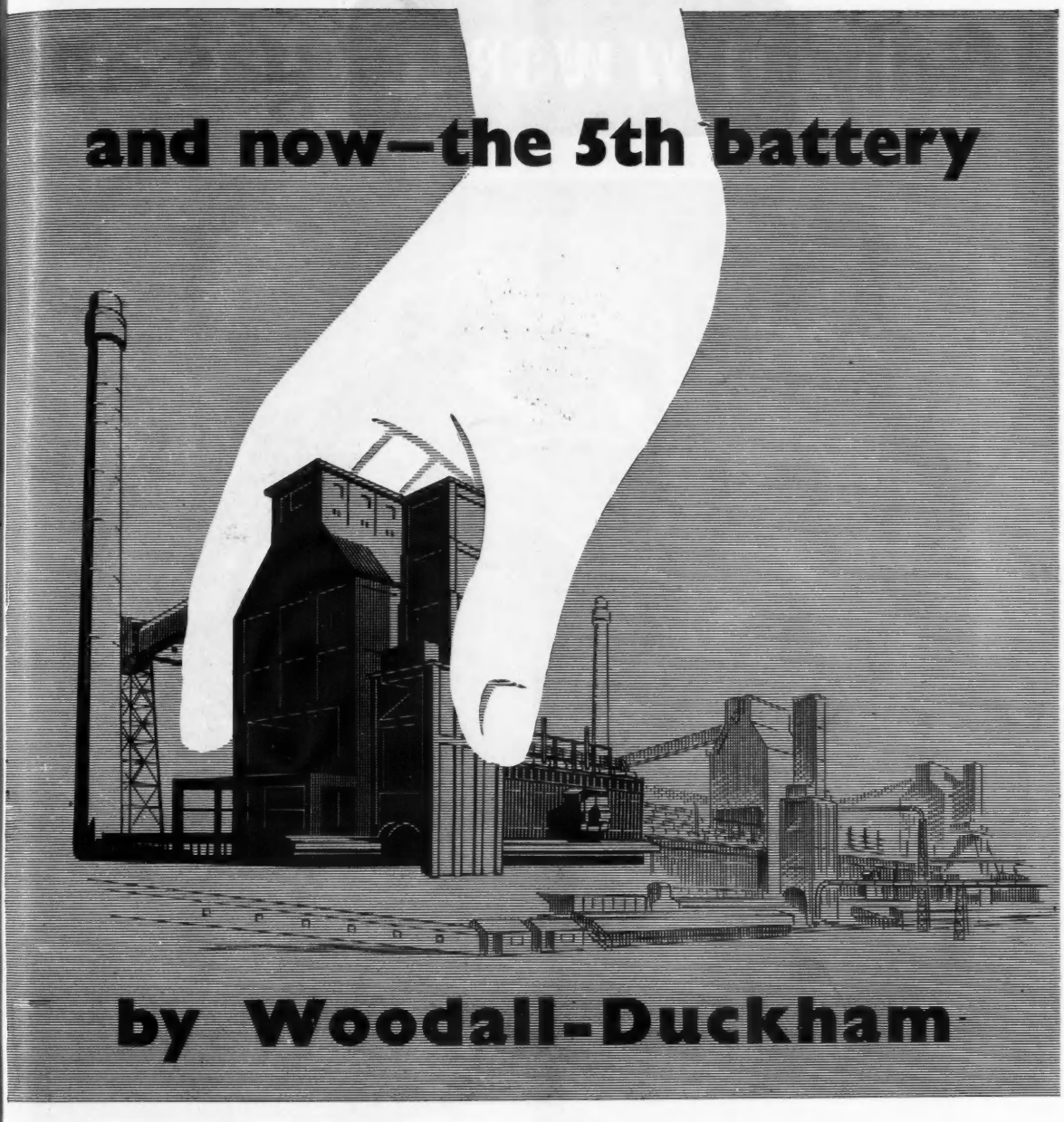
(4) The whole building is in a quiet and comparatively dust and fume free area of the works with no heavy vibratory machinery or heavy traffic in the vicinity.

(5) The room is adjacent to the main distribution box and district governors and, therefore, ideally suitable for a short length of service main.

The necessity to retain an overhead 24-in. dia. steel gas main leading out of the meter house would have meant an unsightly feature within the room, as the main would have passed through the walls at a height of approximately 8 ft. above ground level. It was therefore decided to close off a portion of the available space around the main and provide a corridor between the outside west wall and the meter room. Easy access is thus maintained via the corridor and the existing meter house door, which is modified to become the new locked door of the test room. As the test room is permanently locked except during the visits of the gas examiner, a viewing window was provided in the east wall of the room in order that the various readings on the instrument could be checked from the outside (*i.e.*, the meter room).

The two new outside walls are constructed of two walls of 4½-in. brickwork with a 2-in. cavity between, the cavity playing an important part in the ventilation of the room. The north wall has a double framed window to cut down thermal losses, the inner frame being hinged so that cleaning of the outer set of interior panes can be carried out.

(*Continued on p. 365*)



The North Thames Gas Board have just ordered their fifth battery of W-D Koppers Coke Ovens for their Beckton Station.

These five batteries will have a total coal carbonising capacity of 3,000 tons per day.

THE WOODALL-DUCKHAM VERTICAL RETORT & OVEN CONSTRUCTION CO. (1920) LTD.

Woodall-Duckham House, 63-77 Brompton Road, London, S.W.3

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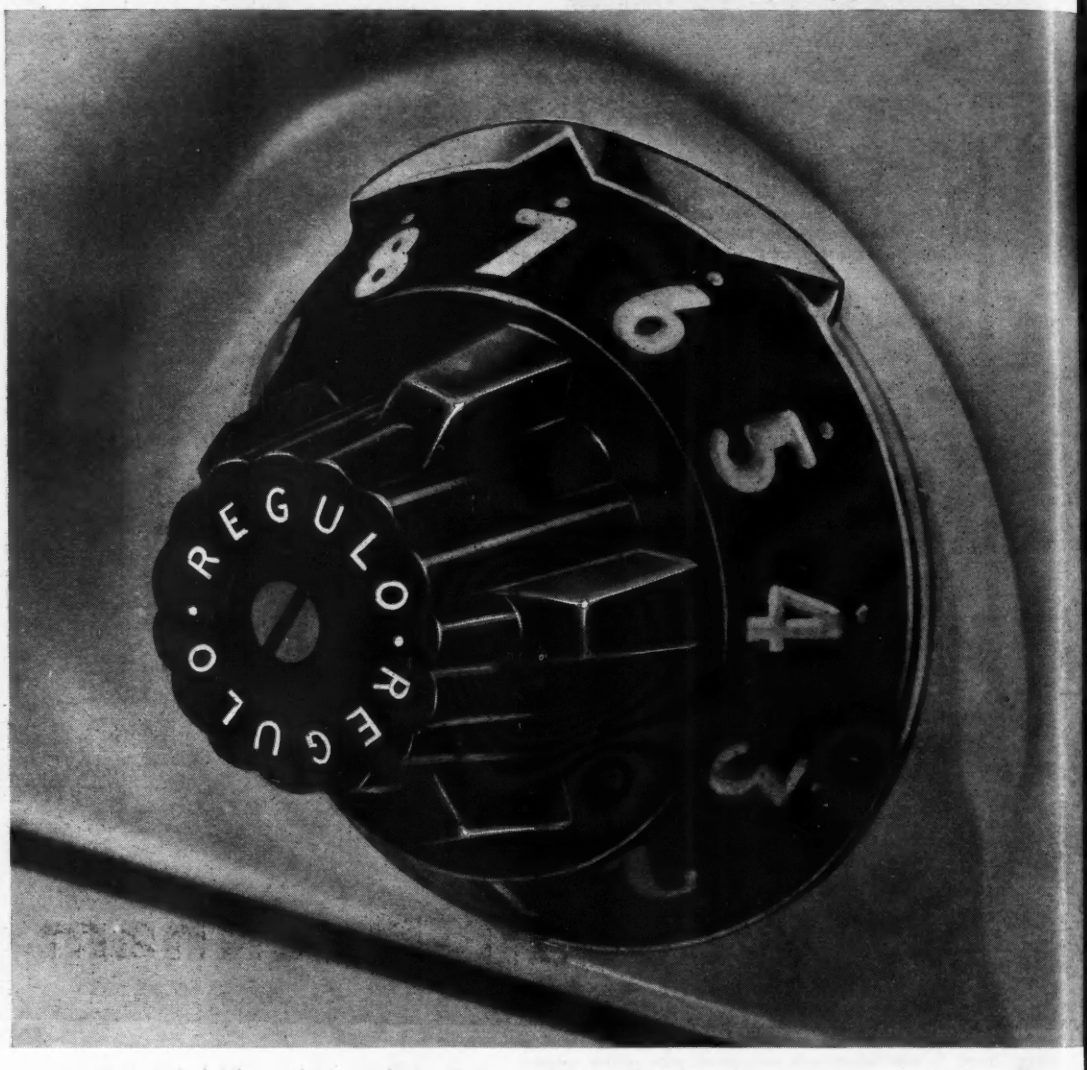
Only NEW WORLD gas app



The introduction of the REGULO on the first NEW WORLD cooker in 1923 opened a new era by removing all the guesswork from cooking in the oven.

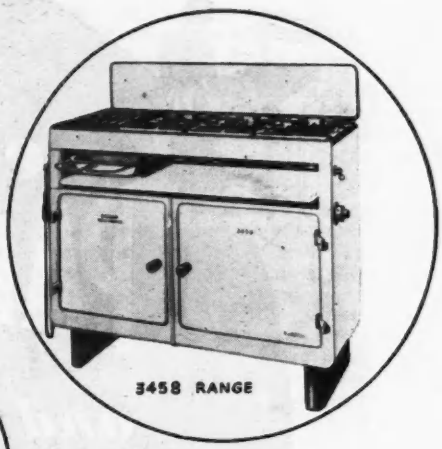
In recent years its use has been extended to provide NEW WORLD storage water heaters with a completely reliable automatic heat control.

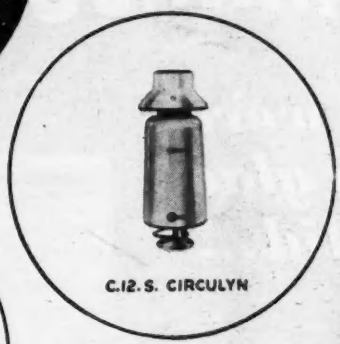
To-day, there are well over two million REGULO in constant use — a fitting tribute to the excellence of this ingenious device.

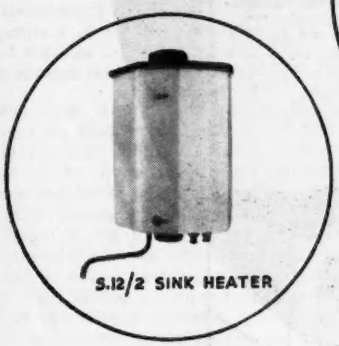
Radiation Group Sales Ltd., Head Office and Showrooms:—7, Stratford Place, London, W.1 Tel. MAYfair 6462

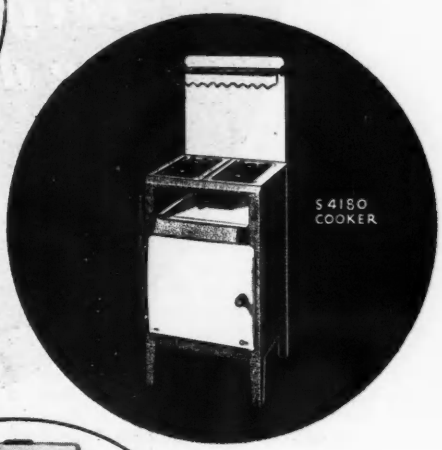
NEW WORLD NEW WORLD NEW WORL

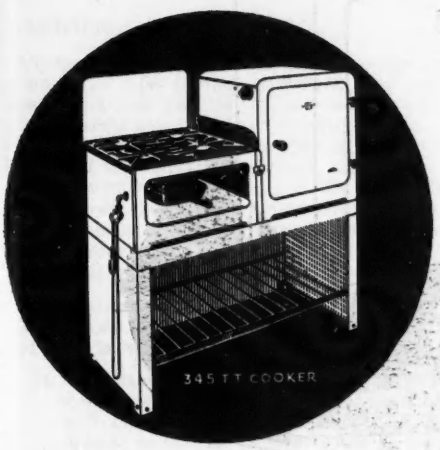
ppances have REGULO control











NEW WORLD NEW WORLD NEW WORLD

THE SELF LIGHTING BURNERS SAVE FUSS AND TROUBLE...

"We chose a PARKINSON and we're very glad we did..."

...turn on the tap and the burner lights itself.

THE PARKINSON STOVE CO., LTD., STECHFORD, BIRMINGHAM
A Member of the Parkinson & Cowan Group

To conform with the existing lines of the building a flat roof has been adopted having the same height as the adjoining roof of the meter room. It is fabricated from 'Holocast' precast 'Bison' slabs. These slabs have hollow sealed centres and, therefore, have good insulation properties. As the roof was rather high for the requirements of the room, it was decided to make use of the available space and install a false ceiling of beaverboarding on a framework of 2-in. square batons, the whole being suspended by mild steel hangers grouted into the joints between the 'Bison' slabs. This provides the ventilation space recommended by the Ministry.

To give the room a good internal appearance and provide extra insulation, all the internal walls were also covered with the beaverboard and wood framing.

The heating of the room by gas or electric radiant heaters, although excellent as regards thermostatic control, was rejected on the grounds that there would be too much localised heating in front of the units, the warmed air thus travelling straight up to ceiling level and away through the outlet ducts, while other parts of the room might remain at lower temperatures. The instrument itself might be thus affected, leading to inaccurate results. The system of heating by low pressure steam through tubing round the sides of the room, at ground level, was therefore chosen.

The thermal losses caused by radiation through the walls, ceiling and floor of the room and due to two air changes per hour were calculated; and assuming a probable winter outside air temperature of 12°F. of frost and a constant internal temperature of 60°F. using steam at 15 lb. per sq. in., it was found that one 2-in. dia. and one 1-in. dia. wrought iron steam tubes around three sides of the room would be adequate.

Each tube is provided with a stop valve in the outside corridor so that, in addition to the governing action of a thermostatically controlled steam valve on the main inlet line, either of the tubes can be shut off should the difference in outside and inside temperatures be sufficiently small to warrant a smaller heating area inside the room. This tends to ease the operation of the thermostatically controlled valve which (by adjustment of the two tube stop valves) can be made to operate around its half-open position and prevent wire-drawing which may occur should its valve seat be nearly closed. The position of the valve is indicated on a pointer on the valve casing and it will be left to the routine checker occasionally to adjust the stop valves to allow the thermostatically controlled valve to operate in a satisfactory 'open' position.

Ventilation

Ventilation air for the room enters through tiled grill ventilators in the upper portions of the two outer walls and travels down the cavities, then through adjustable grill louvres situated at four points along the base of the walls and just above the steam tubes. This allows the air to pass over the heated tubes and rise uniformly through the room, and for its exhaustion through an opening in the false ceiling to the air space above; the natural ventilation is assisted by a small electric exhaust fan. From the air space it returns to atmosphere through the cavity wall via a further set of tile grills situated higher up the outer walls.

The instruments comprising the full equipment in the official testing room were purchased from Scientific and Projections, Ltd., and include the following items:—

(1) Short table-type official Fairweather recording calorimeter having the electrical recording unit suitable for wall mounting on a hinged bracket. This was specially ordered so that the recorder could be mounted near the viewing window for outside reading and could also, during inspection by the gas examiner, be turned round so that, while taking spot readings during the test, he would be able to see the scale from inside the room.

(2) Electrical meter escapement with a long pendulum electric clock and seconds switch for positive control of the rotation of the meter drum.

(3) Electrically operated safety device for shutting off the gas at extreme high and low levels.

(4) Trickle chargers for A.C. mains.

(5) Water weighing balance and aluminium vessel.

(6) Pressure recorder with eight-day clock and continuous pressure recording chart, mounted similarly to the calorific value recorder for viewing through the window.

(7) One 1 H.P. electric motor driven pump set complete with starter and upper and lower copper tanks with ball valves comprising the recirculating system. This system is used where the town water supply is suitable for orifice measurement.

The warmed water from the calorimeter is run to waste but as this forms a small proportion of the total water required the cost of the wastage is comparatively small. The remaining water is recirculated as follows. Water is pumped from the lower tank to the upper tank by the electric motor and pump unit, both tanks being connected to the mains supply by ball valves. The rate of pumping is sufficient to maintain the overflow from the upper tank, and consequently the ball valve closes the supply from the main. Due to water used in the calorimeter being run to waste, the level in the lower tank will fall and its ball valve will remain sufficiently open to maintain the correct level. In the event of a mechanical breakdown the upper ball valve will open to the main supply. The level in the lower tank will thereupon rise and the excess water will run to waste through the overflow.

An inlet water temperature of 5°F. less than room temperature is considered ideal for good working of the instrument, and by having the lower tank below ground level in cooler surroundings and with the small additional water supply entering the top tank from the main a temperature slightly lower than that of the room is ensured.

Standby Equipment

The Ministry specifies that a Boys non-recording calorimeter be available for use should the official instrument be out of action for longer than 48 hours, or, alternatively, a sufficient number of spare parts to repair the instrument within the same period of time. It is not necessary for the Boys calorimeter to stay permanently in the test room and it can be used for routine checks elsewhere on the works, as well as its main purpose as a standby. It is, however, necessary to provide a small bench and sink in the official test room on which to stand the Boys calorimeter when this is being used in emergency. Cupboard space can be provided under the bench for the storage of minor spares for the instruments and also for those items the gas examiner requires to leave on the premises.

The test room floor has an area of 120 sq. ft. This is a good deal less than the recommended figure of 175 sq. ft., and the final approval of this layout shows that the Ministry is prepared to co-operate on certain points provided the design is satisfactory in other respects.

When the scheme has been set out and ready for approval, drawings have to be submitted to the Controller of Gas Standards at the Ministry of Fuel and Power. The drawings are to include the following:—

(*a*) A detailed drawing of the official testing room showing position of instrument, method of ventilation and heating, positions of doors, windows, and construction of walls, roof, floor, etc.

(*b*) A complete diagram of all gas mains on the works, sufficient to identify the gas stream from the producing unit to the mains leaving the works, indicating the diameter of the mains and connections and also the positions of any valves, syphons, vaporisers, or sprayers with an indication whether or not the valves are kept open or closed permanently except in cases of emergency. The

(*Concluded on p. 367*)

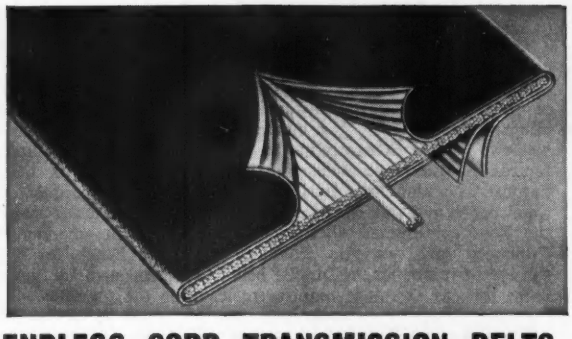
Keep plant costs down

IF YOU have a hose or belting problem that keeps your costs near the margin, bring it to Goodyear. You will profit from their experience of over fifty years which has enabled Goodyear to develop a range of industrial rubber products from which the specific needs of every job can be suited. You will find conveyor belting for every type of service, transmission belting and V-belts to suit every condition of loading, hose to meet the particular needs of every industry. Most of all you will find economy, reliability and long dependable service.

WITH LONGER-LASTING BELTING AND HOSE

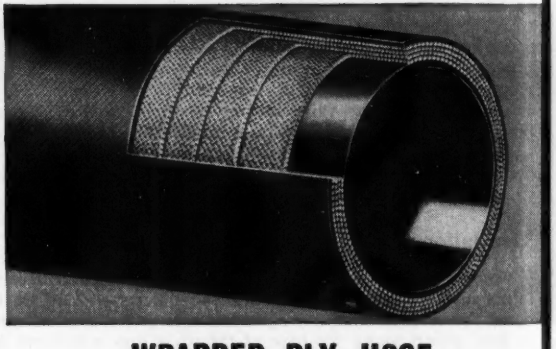
GOODYEAR CONVEYOR BELTS

The "Stacker" belt illustrated here is designed for installations which handle highly abrasive materials. Its tough resilient cover "gives" under impact and resists cutting. High grade bonding between the plies prevents separation under severe flexing. It is proofed against the ruining effects of mildew.



ENDLESS CORD TRANSMISSION BELTS

Specifically built for modern high-speed, small-pulley machinery, Goodyear Endless Cord Transmission Belts incorporate a patent *balanced* construction of load-carrying cords. Their H.P. capacity is 33⅓% greater than ordinary belts of equivalent thickness; they are geniunely endless; and have an unusual degree of flexibility which gives a firm grip on small pulleys at high speeds.



WRAPPED PLY HOSE

This Goodyear Hose is built from high-grade rubber tube wrapped in tough rubberized fabric for greater strength. A protective cover of bruise- and abrasion-resisting rubber assures lasting wear. And scientific arrangement of the fabric plies minimizes kinking. Intended for general service this wrapped ply hose gives long life under the most arduous conditions.

GOODYEAR

INDUSTRIAL RUBBER PRODUCTS

TRANSMISSION BELTING · V-BELTS · CONVEYOR BELTING · HOSE

position of the test room in relating to the rest of the works can conveniently be shown on this drawing.

(c) If the tapping point is to be from some form of collecting box which will normally be the case on a large gasworks, a detailed drawing should be submitted of the mains in and around that area and indicating the point where the service pipe is to tap-off. This means that the tapping point is before the district governors and it then becomes necessary to provide for an additional service pipe at a point after the governor to supply the pressure recorder. In each case the service pipes should have a continuous fall back to the main.

Certain modifications have been carried out in order to overcome minor faults, such as extra trapping of the steam supply to the heating coils and alteration to the outlet duct over the service line burners to counteract downdraughts.

In the water system a certain amount of trouble was experienced during winter conditions when the small amount of very cold make-up water from the town supply entering the recirculating system lowered the temperature of the water to the instrument below that normally desired. This meant reducing the room temperature to an uncomfortably low figure in order to maintain the 5°F. difference between the temperature of the instrument and the water. The difficulty has been overcome by slightly modifying the recirculating system so that part of the warm water from the calorimeter, which normally runs to waste, is returned to the lower tank. This has the effect of raising the water temperature and at the same time reducing the amount of make-up water entering the system.

STEAM RAISING AT TAUNTON

By B. FRANCES,
South Western Gas Board

Paper to the Western Junior Gas Association

TAUNTON possessed five boilers at vesting date, a waste heat boiler in connection with the horizontal retort setting, one incorporated with a Humphrey and Glasgow water gas plant, and three water-tube boilers. The retort house waste heat boiler was secondhand, being installed in 1942. The water gas waste heat boiler was built with the new carburetted water gas plant in 1944. The water-tube boilers were very old, being built by Babcock and Wilcox about 1890. They were bought from the Exeter electricity undertaking in 1926, after they had become obsolete, and re-erected in Taunton. These boilers had cast iron headers, but in general design were little different from modern small water-tube boilers. Many repairs had to be done from time to time owing to their age. One was accidentally allowed to run dry during the war and had to have the drum welded and a home-made superheater fitted. In 1944 another had to be re-tubed. When, in 1948, the tubes failed on one of the boilers it was apparent that the time for their replacement was due, or perhaps overdue.

The replacement of these old boilers was unavoidably delayed during the early stages of nationalisation and during consideration of schemes of integration. Eventually two Lancashire boilers became available at Tiverton gasworks where they were to have been installed in a new boiler house. The boilers and the steelwork for the house were acquired for the Taunton works. The scheme had to be modified to meet the requirements of the new site.

Difficulties in Erecting New House

On excavating the site it was found that the subsoil was very unstable, consisting of soft marl clay charged with water, so that a rod could easily be driven to a depth of 12 ft. It was therefore obvious that the ground would not carry the required load. A reinforced concrete pile was made 12 in. square and 25 ft. long and driven into the south-west corner of the site. Careful records were taken of the set of the pile during driving. The test showed that the pile went down very easily for the first 16 ft. and fetched up until a satisfactory set was obtained when the toe of the pile reached a depth of 24 ft. 10 in.

From the test, foundations were designed so that the house was supported on 15 piles, one under each wall stanchion, and supporting reinforced concrete beams were constructed to carry the walls. The foundations for the boilers consisted of a concrete slab 18 in. thick and measuring about 42 ft. by 30 ft. carried on 48 reinforced concrete piles 22 ft. to 27 ft. long.

The 100 ft. high chimney is carried on a reinforced concrete raft 16 ft. 6 in. square and 2 ft. thick supported on 25 piles. The piles for the chimney were made 26 ft. to 30 ft. long as they had to carry a greater weight than the other foundations owing to additional wind pressure.

To save weight, 4½ in. walls, reinforced with lengths of steel mesh, were incorporated in the modified design. The space between the boilers was narrowed so that at a future date a further boiler might be installed in the new house.

The originally designed space between the front of the boilers and the end wall of the building, which was to have been 18 ft. 6 in., was increased to a distance of 21 ft. 6 in. to allow for maximum fuel storage in order that as much drying out as possible should take place before firing.

The Boilers

The boilers obtained from Tiverton are Lancashire boilers measuring 8 ft. 6 in. in diameter and 30 ft. long. They are fitted with Turbine furnace grates 7 ft. 6 in. long and superheaters capable of giving superheat of 100°F. The grates and superheaters are so arranged that each boiler is completely independent of the other. The boiler house itself is 42 ft. wide by 56 ft. long, with a height of 18 ft. 6 in. from the floor to the eaves. The chimney stack reaches a height of 100 ft.

It was proposed at the outset that the fuel to be used on the boilers should be screenings through a ¾ in. square mesh. The fuel, although burnable, was found not to give sufficient steam for works purposes. At the present time coke breeze screened through a ⅝ in. square mesh is being used.

There have been many unavoidable factors which have been responsible for the prolonged delay in setting the boilers to work—modifications to the foundations and structure of the house, prolonged delay in supplies of building materials and fittings, and shortage of labour. The extreme age of the existing steam producing plant has made it necessary for temporary work to be carried out on the boiler installation in order that the plant could be put to work as soon as possible.

Given suitable fuel these boilers should be capable of supplying sufficient works steam for our requirements in the near future.

Design for Safety . . . . A New Gas Boiler Control

A NEW safety control developed by Thomas De La Rue & Co., Ltd. (Gas Group), for their 'Rex' series of Potterton gas boilers, was introduced to the Press on July 30. This control, developed after two years of research and experiment, has been designed to combine the worth-while features of existing types of control while eliminating any disadvantages. It is put forward as the complete answer to the problem which has faced gas engineers for many years—that of devising a control which not only performs efficiently under normal conditions, but which is perfectly safe in the event of a breakdown caused by mechanical failure or by human fallibility.

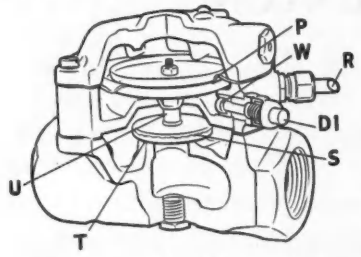


FIG. 1

The new control—the 'Perfecta' combined flame failure and pressure cut-off double-duty device, to give it its official designation—overcomes the four major shortcomings which have been found to exist in the flame failure devices most commonly used on 'Rex' boilers, which are as follows:—

(i) Leakage of gas in the relief line from the control valve causes the valve to 'fail to danger'—*i.e.*, with the gas left on to the main burner. This leakage can occur through a loose union or through a fracture of the small-bore copper pipework.

(ii) Blockage of the orifice in the control valve also causes the valve to 'fail to danger.'

(iii) Explosions caused by brief and ill-considered shut-off of gas supply, or use of the incorrect lighting sequence.

(iv) Failure of the thermostatic element of the flame failure device may cause the valve to 'fail to danger.'

The design of the new 'Perfecta' control obviates these disadvantages in the following ways:—

(i) Leakage of gas on the relief line causes the valve to fail to safe as pressure cannot be maintained beneath the diaphragm.

(ii) All small orifices which might become blocked are eliminated.

(iii) If there is any interference with the main gas supply, or if, for any reason, the pressure in the gas main drops below 1 in. W.G., the valve shuts off and gas cannot be brought on again unless the controls are reset by hand in the correct sequence.

(iv) Failure of the thermo-electric device causes the valve to close, shutting off all gas.

The new control consists of a permanent pilot, thermo-couple unit, and a thermo-electric valve operating a reversed action relay valve which is weep reset. Operation can best be described by reference to Figs. 1 and 2.

Lighting.—The burner cock is closed. This is essential to prevent relief of gas through valve stem (U). Pilot jet (K) is ignited, heating thermo-couple (J) which produces E.M.F. which energises magnet (L). Button (Fl) is momentarily depressed by hand, bringing plate (V) into contact with the magnet. This brings the valve on to seating (N), which closes relief line (R). Reset button (Dl) is depressed by hand for 10 sec.; gas enters through valve (W) and builds up pressure under diaphragm (P) raising valve (S) from seating (T). The burner cock is opened by hand and the burners ignite from the pilot.

Flame Failure.—In the event of flame failure, the thermo-couple (J) cools and de-energises magnet (L). Spring (M) thrusts the valve off seating (N) and gas is released through vents (O). Pressure is relieved under the diaphragm (P) through relief line (R), and the valve (S) falls on seating (T) shutting off gas. The average time for this operation is 30 sec.

Pressure Failure.—If pressure in the gas supply falls below 1 in. W.G. pressure

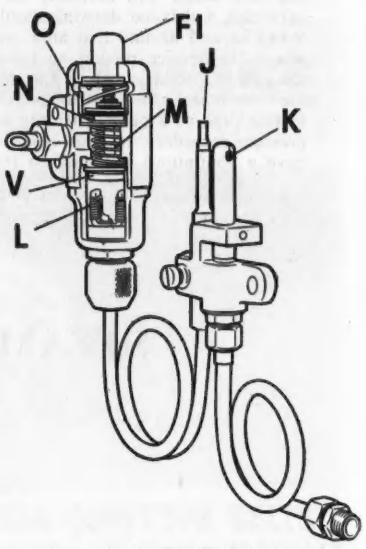


FIG. 2

is relieved under diaphram (P) through valve stem (U). Valve (S) then falls on seating (T) shutting off gas. This operation is almost instantaneous. Fig. 3 is a photograph of the 'Perfecta' control fitted to a 'Rex' series Potterton gas boiler.

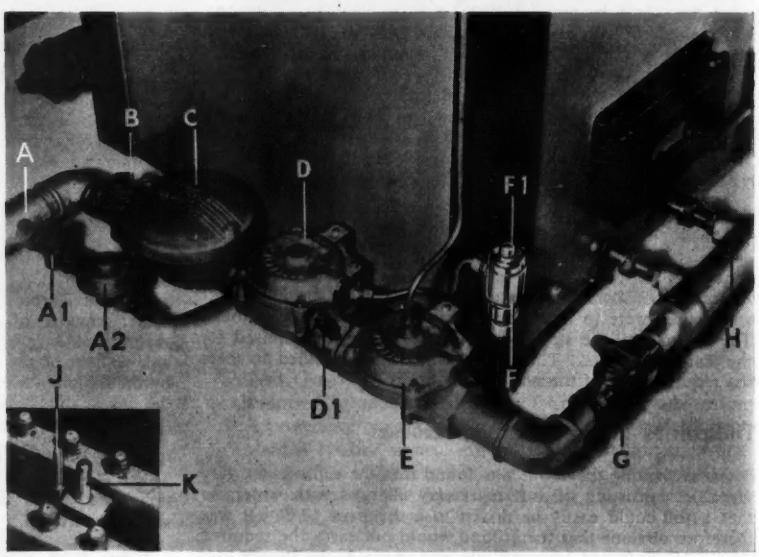


FIG. 3

A.—Permanent pilot branch.
A1.—¼ in. loose key cock.
A2.—¼ in. constant pressure governor.
B.—Gas main cock for isolation of boiler and controls.
C.—Constant pressure governor.
D.—Combined weep reset pressure cut-off and reversed action relay valve.
D1.—Press-button control to allow gas to pass to chamber under diaphragm.
E.—Control valve for boiler thermostat, clock control, etc.
F.—Thermo-electric valve.
F1.—Press-button control to move valve into contact with electro-magnet.
G.—Burner cock.
H.—Burner pressure test nipple.
J.—Thermo-couple.
K.—Pilot jet.

(*Continued on p.* 373)

IMPORTANT ANNOUNCEMENT

"POTTERTON" GAS-FIRED BOILERS

fitted with the new

"PERFECTA"

Combined Flame Failure and Pressure Cut-off Device

(Patents Applied for)

We take pleasure in advising the Industry that as from August 1952, all 'D' Series and 1 Series 'Rex' boilers will be available fitted with the above device, 2 Series and 3 Series boilers will be available from September 1952.

The "Perfecta" Flame failure and Pressure cut-off device represents an important advance in control technique. It is simple and effective and shuts off the gas supply to the boiler immediately if gas pressure in the mains falls below a safe limit. It also shuts off gas quickly if the pilot flame is extinguished, and can only be reset by carrying out the correct sequence in lighting which ensures safe ignition at all times.

PRICES

Only a slight increase will be made in the prices of Potterton Boilers fitted with this latest addition to the "Perfecta" range of gas controls, as follows:—

"D" SERIES	£ s. d.	P.T. £ s. d.
2 Section	4 14 6	2 12 0
3 „	4 14 6	2 12 0
4 „	5 5 0	2 17 9
5 „	5 10 3	
6 „	5 10 3	

1 SERIES	£ s. d.	P.T. £ s. d.
2 Section	4 14 6	2 12 0
3 „	4 14 6	2 12 0
4 „	5 5 0	2 17 9
5 „	5 10 3	
6 „	5 10 3	

2 SERIES	£ s. d.
3 Section	7 7 0
4 „	7 7 0
5 „	9 9 0
6 „	9 9 0
7 „	9 9 0

3 SERIES	£ s. d.
5 Section	11 11 0
6 „	11 11 0
7 „	11 11 0
8 „	13 13 0
9 „	13 13 0
10 „	13 13 0

POTTERTON GAS FIRED BOILERS DE LA RUE

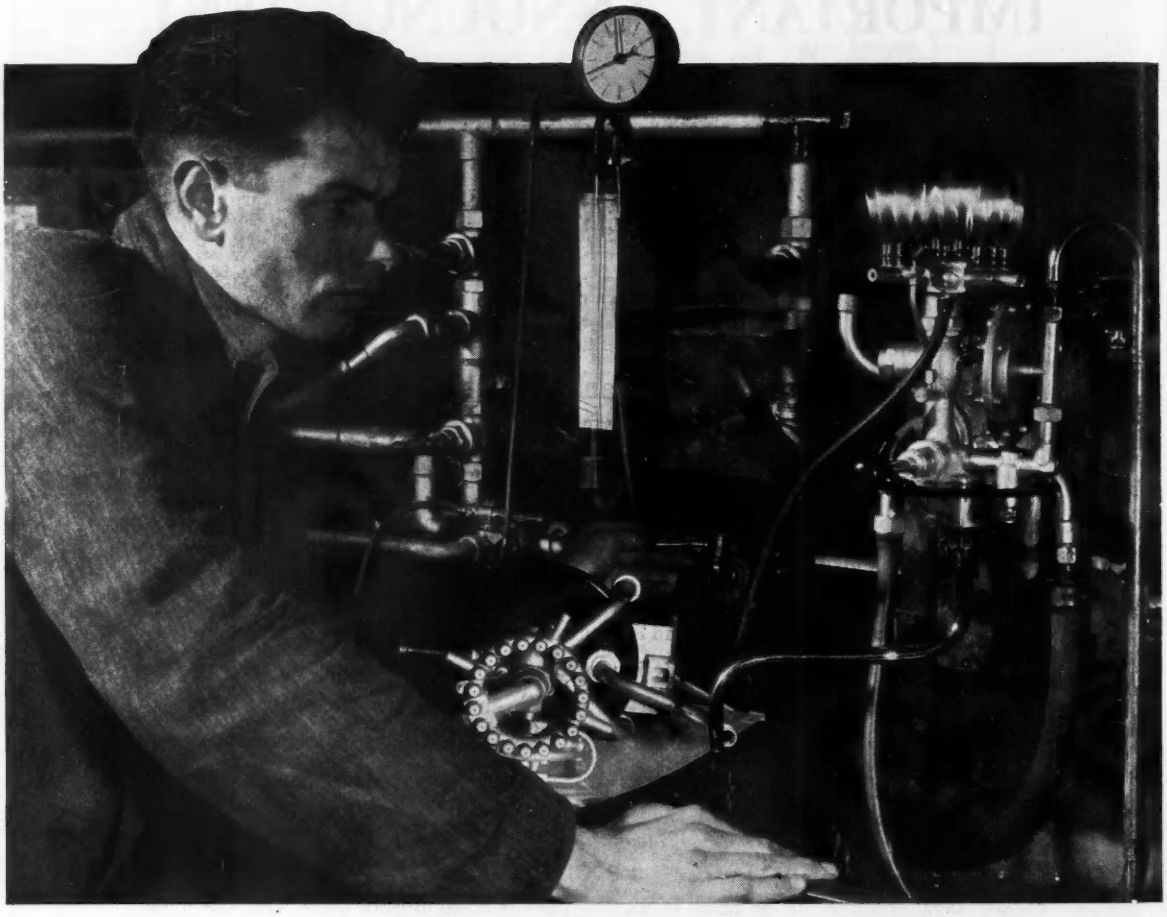
THOMAS DE LA RUE & CO. LTD.,

INDUSTRIAL DIVISION · GAS GROUP

IMPERIAL HOUSE, 84/86, REGENT STREET, LONDON, W.1.

PERFECTA GAS CONTROLS DE LA RUE

quality production

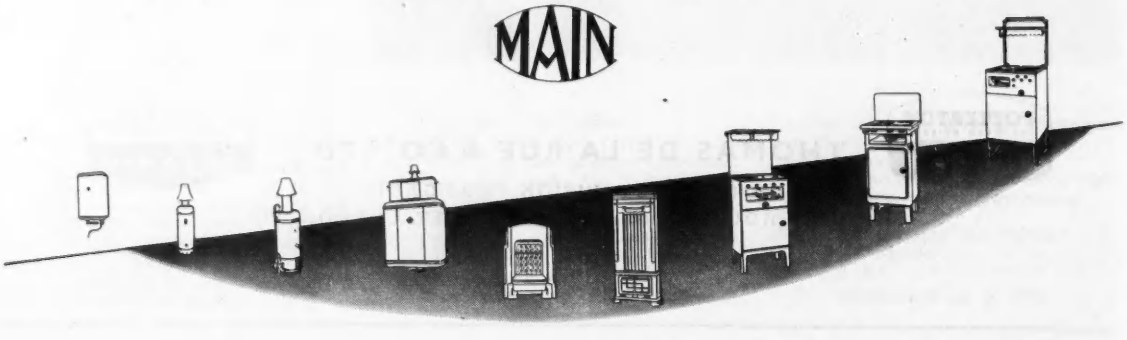


Testing the action of the water actuated gas-valve of a sink heater.

main GAS APPLIANCES

COOKERS • SPACE HEATERS • WATER HEATERS

MAIN

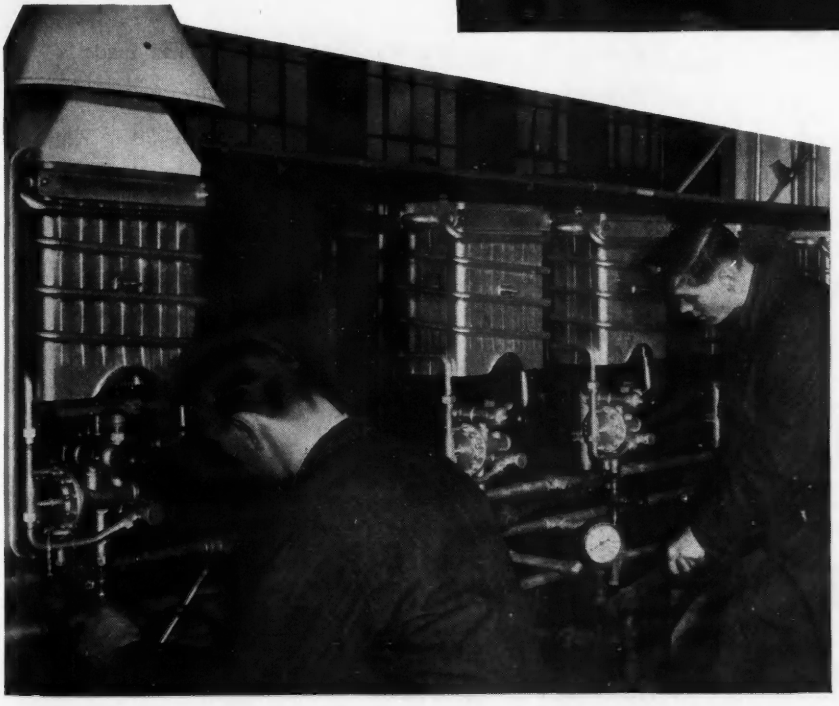


MT/55

IN GAS APPLIANCE MANUFACTURE

Accurate routine testing is a necessary and never-ending part of the manufacture of Main water heaters. Before assembly into a complete appliance, burner units, thermostats, governors etc. undergo, each one, a searching and individual test. Finally the complete heater is put through thorough working tests to ensure that everything is in perfect order.

Testing gas-pressure governors.

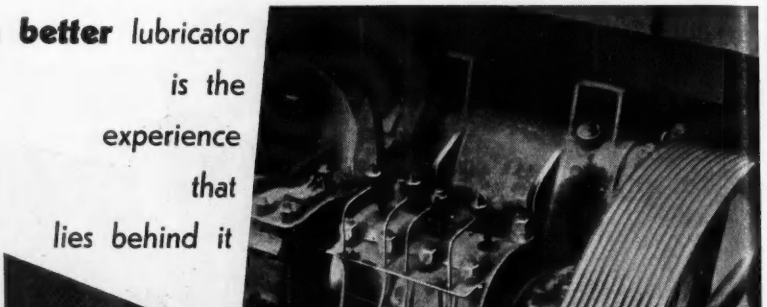


Various tests on large Instantaneous water heaters.

R. & A. MAIN LTD · MAIN WATER HEATERS LTD.

The difference between a good lubricator and a **better** lubricator is the experience that lies behind it

there is over 50 years' experience behind every Wakefield lubricator



Hadfields 55" x 36" Crusher fitted with a Wakefield "Improved" 2G Mechanical Grease Lubricator. All types of plant requiring forced feed lubrication may be fitted with Wakefield Mechanical Lubricators.

For over 50 years the Wakefield Company has made a specialised study of lubrication — that is why, today, the Wakefield "Improved" 2G Lubricator is recognised as one of the most efficient mechanical grease lubricators available. It is entirely British in design and construction and will operate economically with almost every type of grease in normal industrial use. For further details, a free descriptive booklet on the Wakefield "Improved" 2G Mechanical Grease Lubricator will be sent to you upon request.

WAKEFIELD
MECHANICAL LUBRICATORS

C. C. WAKEFIELD & CO. LTD., GROSVENOR STREET, LONDON, W.1

As already stated, the new control combines the operation of a pressure cut-off valve and a flame failure device. Its use ensures that the operator must go through the correct lighting sequence before the boiler can be brought into operation. At the same time, if there is any failure of the operative parts, or leaks in the small-bore pipe connections, then it fails in the safe position. Referring to Fig. 3, F, J and K are duplicated in parallel for each additional pair of burners so that failure of any one of these sets will close the double-duty device.

Lighting Sequence

Again with reference to Fig. 3 the lighting sequence is as follows:—

(i) Ensure that all gas cocks are in the 'off' position. Open pilot cock (A1). Ignite the pilot jet (K). The flame from this jet will play on the thermo-couple (J) which, after being heated for approximately 30 sec., will produce sufficient E.M.F. to energise the magnet in the thermo-electric valve (F).

(ii) Open main gas cock (B).

(iii) Depress momentarily the push-button (F1). This will ensure that the plate is brought into contact with the magnet which, if energised, will continue to hold it thus, maintaining the valve in the relief line gasway in the closed position.

(iv) Depress button (D1) and hold for 10 sec. This will allow gas pressure to build up under the diaphragm, thus lifting the valve off its seating.

(v) Open test cock on control valve (E) weep line, and ensure that all clock and thermostatic controls are open.

(vi) Open burner cock (G), allowing gas to pass through to the burner to be ignited by the pilot flame.

Failure Operation

The double-duty device will shut off gas in the following circumstances:—

(i) If the main gas cock (B) is momentarily turned off, or if the gas pressure drops below 1 in. W.G.

(ii) If there is a leak on the weep line connecting valve (D) to the thermo-electric valve (F).

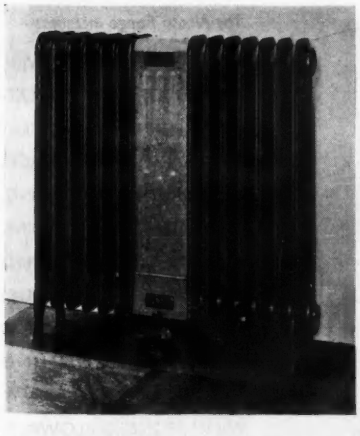
(iii) If the pilot flame is extinguished or if, for some reason, there is failure to supply E.M.F. from the thermo-couple (J).

Before gas can be re-established to the main burners the burner cock (G) must be turned off and the correct lighting procedure repeated.

Hurseal, Ltd.

HURSEAL LTD., introduce a special range of their oil-filled radiators for butane gas operation. This means that people living in outlying districts, unconnected with the gas mains, can now enjoy the specialised benefits of the Hurseal form of heating.

Butane gas radiators employ low temperature direct air warming surfaces which give a comfortable and uniform heat, without patchiness, stuffiness, or overheating. The radiator (illustrated here) encompasses all the other advantages of Hurseal heating. Installation is straightforward; the unit has simply to be plugged into the gas container. Maintenance is unnecessary.



The radiator is made from several welded sections of pressed steel, light but immensely durable, which heats swiftly and is filled with a special oil, hermetically sealed within. The base is fitted with an enclosed, noiseless gas burner with luminous jets, heating copper coils inside the radiator, which circulate the oil and diffuse the heat. There is no exposed flame. When the gas is turned off, the sealed oil retains and diffuses heat for anything up to an hour afterwards.

The radiator can provide the main heating for hall, dining room, bedroom, nursery, television room, or any occasionally used room. Or it can supplement existing heating arrangements. It is strikingly trouble free and economic in operation.

It is available for immediate delivery, in two sizes, H.G.B.1, and H.G.B.2, finished in a special heat resisting gold bronze paint. There is no purchase tax on these models.—*Hurseal, Ltd., 229, Regent Street, London, W.1.*

TRADE NEWS

Larmouth of Swinton

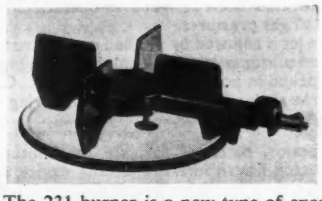
MACHINES have been designed for efficient and economical wrapping of coils of wire and cable with the object of attaining uniform and tight wrapping in a minimum of time; the exact number of coils per hour is variable, depending on the size and character of the coils to be wrapped. The 5 in. machine is suitable for wrapping coils with an outside diameter of 10 to 24 in. with a maximum cross section of 5 in. and a minimum eye of 5 in., and the 8 in. machine deals with coils with an outside diameter of 12 to 36 in., a maximum cross section of 8 in., and a minimum eye of 6 in. Wrapping paper is on a spindle remote from the coil to be wrapped, and the coil is placed between two feed rollers and an adjustable top locating roller, the feed rollers rotating the coil while a horse-shoe type shuttle revolves and passes through the coil. An automatic device cuts the paper when the predetermined length has passed on to the shuttle.

The machine is started and stopped by a pedal, and motors of 1¼ and 1½ h.p. with push button starters are fitted to the 5 in. and 8 in. machines respectively, and to suit the customer's current supply. The whole machine is mounted on a substantial fabricated steel base.—*Larmouth (1947), Ltd., Endsley Works, East Lancashire Road, Swinton, Lancs.*

R. & A. Main

A NEW Main boiling burner, the No. 231, is now available. This ring is specially designed to provide a stable and secure boiling platform for both large and small utensils. The Main 231, with a gas consumption of 10,000 B.Th.U per hour, is equally suitable for boiling and small home cooking operations and for duties in establishments such as canteens, hotels, and hospitals, where the need is for a boiling burner capable of accommodating large-size utensils. The extra-long and stable pot supports of the Main 231 extend to 8¼ in. across, making it eminently suitable for boiling water in buckets, where this is required. Large re-entrant based vessels fit over the supports and combustion is not impaired unless the re-entrant exceeds ¼ in.

A compact and efficient appliance, the burner and pot supports of the Main 231 are of cast iron, finished in high-gloss black vitreous enamel; the detachable spillage tray is of pressed sheet steel, finished in white vitreous enamel with black rim.



The 231 burner is a new type of exceptionally high thermal efficiency, the 24 burner ports being separated into four groups of six, each group being centralised between the four fins which serve as pot supports. The burner incorporates a variable needle-valve injector, and aeration control is by means of a screwed disc with lock nut on the injector tube.

The dimensions of the Main 231 boiling ring are as follows:—

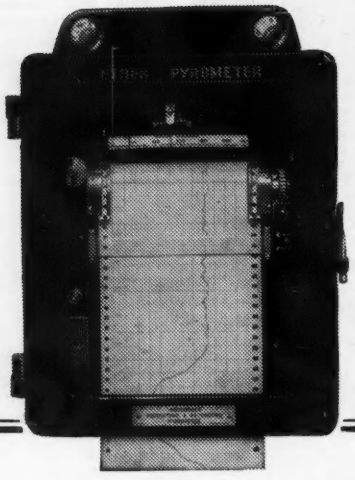
Overall length (including injector) 12 in.
Overall width across supports 8¼ in.
Height to top of supports 3¼ in.
Diameter of tray, 9 in.
Size of gas connection, ¼ in. by 26 TPI.

ETHER

AUTOMATIC

TEMPERATURE CONTROLLERS

Mechanically and Electronically Operated



Ether-Wheelco "Capacitrol" E.W.221.

This instrument utilises electronic action to achieve rapid and accurate control of furnace temperature. Supplied for On, Off, High, Low and Proportional Control.

Ether "Indicorder" Type C.R.M.S.

Indicate, Record and Control Gas Furnace Temperatures automatically. Made for Wall or Panel Mounting. Send for List No. 645.

Pass your automatic temperature problems to us — We design and manufacture a full range of instruments and Valves and can advise the most suitable apparatus to meet your requirements.

We also manufacture, under the American Wheelco Co. Patents, a range of Ether-Wheelco Electronic Controls which, when supplemented by our normal Ether range of Instruments, cover every Automatic Temperature Control requirement.

Our technical advisory service is always at your service.

ETHER LIMITED

TYBURN ROAD, ERDINGTON
BIRMINGHAM, 24
Telephone - - - EASt 0276-027

Holden

WILKES' LOW PRESSURE GAS & AIR INJECTORS

Wilkes Gas & Air Injectors are available in a wide range for use with Gas furnaces of all types and descriptions and are especially suitable for use with enamelling stoves, furnaces, bar burners, heating tanks, etc. Let us have details of *your* particular requirements.

B.3005
Standard pattern variable gas consumption injector, has been designed to operate efficiently on all gas pressures.
The jet is adjusted by a milled cap to give any desired consumption within the specified range, and is locked in position by a locking ring. Control of the air is effected by a split milled ring on the body of the injector.

B.3007
Superior, patented variable gas consumption injector has an internal locking device so that when the desired maximum gas flow is obtained it cannot be altered or interfered with unless the outer protecting cap is removed.
Minimum restriction to the gas flow is achieved with this new and novel design, and in this case the gas connection is at right angles to the outlet.

B.3005. B.3007.

The Alcosa Range includes:—

AIR GAS MIXERS FOR WIDE RANGE OF HEAT TREATMENT PLANTS, GAS BURNERS, GAS FIRED FURNACES FOR FORGING, HARDENING, ANNEALING, WELDING AND MELTING. HIGH SPEED BRAZING APPARATUS, SOLDERING AND BRAZING EQUIPMENT. TINNING BATHS. ALSO THE NEW WILKES B.2106S.L. BLOWPIPE.

Write for lists

A.H.WILKES & CO.

and full details

A SUBSIDIARY OF WILLIAM ALLDAY & CO., LTD.

THE MOST DEPENDABLE NAME IN GAS APPLIANCES

ALCOSA WORKS · STOURPORT-ON-SEVERN · WORCESTERSHIRE · TELEPHONE: STOURPORT 311-4 · TELEGRAMS: YADALL STOURPORT
LONDON OFFICE & WORKS · CRESSWELL WORKS · SOUTH NORWOOD · S.E.25 · TELEPHONE: ADDISCOMBE 1162

CRANE
LTD

HAWKINS
IMPERISHABLE

JOINTING PASTE

Non-poisonous, cheaper and better than red lead, ideal for gas, steam or water.

IRON CEMENT

Looks like iron, can be buffed burnished or drilled and automatically caulks itself into any joint.

Also Manufacturers of Hawkite Paint.

W. T. HAWKINS & CO.
CHAPEL HILL, HUDDERSFIELD

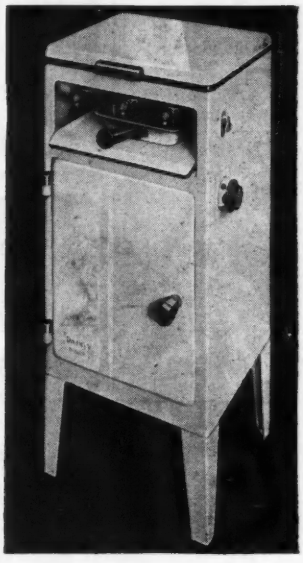
Send for Sample Tin POST FREE

Sole Agents for Australasia:
W. T. HAWKINS (Australia) Pty. Ltd.
Hardware House, Hardware Street, Melbourne, Australia

n.d.h.

For small Kitchens and Flats...

The
Dainty
MINOR



This efficient little cooker of large capacity is made especially for small kitchens and flats.

Its cast iron construction ensures durability and low maintenance cost.

For hire purchase or for simple hire. The 'Dainty' Minor is ideal.

Approved and adopted by leading gas boards.

Leaflet fully describing this efficient, attractive and economical cooker will gladly be sent.

R. RUSSELL & SONS LTD., DERBY

Agents for Scotland and Northern Ireland:
JAMES R. THOMSON & CO. LTD. 41, York Street, Glasgow. C.2

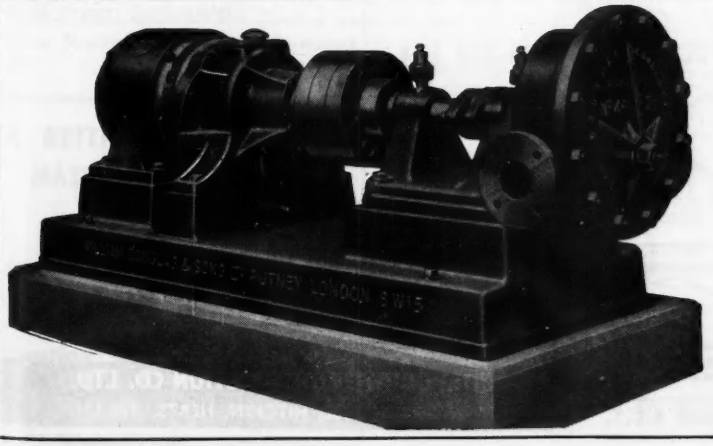
SCRAP GAS METERS WANTED

Top prices paid—Collection arranged from anywhere in U.K.

Sell to those best suited to deal with them.

Sell to — MITCHAM SMELTERS LIMITED
Rometal Works, Red House Road,
Mitcham Road . . . CROYDON . . . Surrey.
Tel: THOrnton Heath 6101. (Private Branch Exchange).

Truck Loads to our own private siding, Beddington Lane, Southern Region.



"THE DOUGLAS PUMP"
STEAM HEATED FOR TARS.

GOOD SUCTION
SLOW SPEED

WILLIAM DOUGLAS & SONS LTD.,
PUTNEY - - LONDON, S.W.15.

MOMENTOUS *Measures*

A GUARDIAN MEASURE No. 35

His nice arresting manner,
His quite substantial feet,
His imperturbability
As he strolls down the street,
Inspire us all with confidence
In Law and Order's maintenance.

In the year 1829 Sir Robert Peel established the Metropolitan Police Force (Peelers as they were called), which has since developed into a National organisation safeguarding Law and Order.

The 'A & M' Meter is a modern measure designed to safeguard and maintain the revenue of the Gas Industry.

THE "A & M" METER

A MODERN MEASURE for the Gas Industry

ALDER & MACKAY LTD.
New Grange Works, Edinburgh
Bradford, Manchester, London, Belfast & Cork

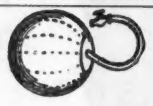
COMPRESSORS & EXHAUSTERS FOR AIR AND GAS.
See our Advertisement Next Week.
REAVELL & CO. LTD. IPSWICH.

GAS METER CRANKS
Telephone: DUNSTABLE 90
The Clifford Engineering Co., Ltd.
Dunstable, Beds.
Specialists for over 30 years
Annual production over 700,000 cranks

THOMAS BUGDEN & CO.
India-Rubber and Airproof Manufacturers and General Contractors.
LARGEST MANUFACTURERS OF GAS MAIN BAGS.
Telegrams—"AIRPROOF, BARB, LONDON." Telephone—6147 CLERKENWELL
Contractors to H.M. Government

Gas Bags for Repairing Mains

PATENTEES OF THE **DENMAR BAG**
Impervious to Main Liquor and Climatic Influences.



Round or Cylinder Shape.

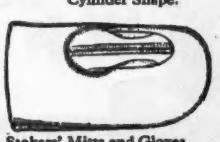
Pull-through and Expanding MAIN STOPPERS.

All types of INDIA-RUBBER BOOTS.

DRAIN RODS AND WHALE-BONE BRUSHES.

HOSE AND TUBING FOR ALL PURPOSES.

Contractors' & Miners' Woollen Jackets, Trousers, Hats, &c.



Stokers' Mitts and Gloves of every description.

244, Coswell Road, LONDON, E.C.1.

GUNITE
PNEUMATICALLY PLACED CONCRETE
DENSE · DURABLE · HIGH STRENGTH
for
LININGS FOR STEEL COAL & COKE HOPPERS
RESTORING DISINTEGRATED CONCRETE STRUCTURES etc.
Get in touch with us for engineering data and estimates
THE GUNITE CONSTRUCTION CO. LTD.
WESTERN HOUSE, HITCHIN, HERTS. Tel. 571.

PUBLISHERS' NOTICE

The "Gas Journal" is published every Wednesday, price 1/3d.; by post 1/5d.

Subscription Rates : Home and Empire :- 52/- per annum ; Foreign :- 60/- per annum. (Both payable in advance.) A copy of the "Gas Journal" Calendar & Directory is presented each year to continuous subscribers.

Classified Advertisements : All small classified advertisements are charged at 1/9 per line (approx. 7 words) - minimum charge 10/6. A Box Number address occupies 2 lines, and a further 6d. is charged towards cost of postage on replies. Copy must be received by first post on Monday to ensure insertion in that week's Journal.

Displayed Advertisements : Rates obtainable on application to the Business Manager. Change of copy for displayed spaces must be received 14 days prior to publication if proofs are required. Type area of inside pages 10" deep x 7" wide; block screen 120.

BUSINESS MANAGER : S. T. CULLEN

MIDLANDS OFFICE : 10, Union Street, Birmingham.

NORTHERN MANAGER : W. Q. Foster, 33, St. Helens Road, Harrogate. 'Phone : Harrogate 84291.

WALTER KING, LTD., 11, Bolt Court, Fleet Street, London, E.C.4.

Telephone : CENtral 2236-7. Telegrams : Gasking, Fleet, London.

OXIDE

DUTCH AND DANISH BOG ORE SPECIALLY ACTIVATED OXIDE OF IRON

Oxide supplied on loan or sale outright. Highest prices paid for Spent Oxide.

Send your enquiries to

GAS PURIFICATION & CHEMICAL COMPANY LIMITED

ESTABLISHED 1873

PALMERSTON HOUSE, OLD BROAD STREET, LONDON, E.C.2.

Telegrams : "Purification, Stock, London." Telephone London Wall 5077

PUBLICATIONS

GAS ACCOUNT CALCULATORS

SUPPLIED either by Price per Therm or Thousand, for any specified Calorific Value, in book form, office charts, or pocket charts for Meter Inspectors, printed in clear type. Write for particulars to F. H. WAKELIN, LTD., Calculator Specialists, 354, WHEELER STREET, BIRMINGHAM.

'Phone: Northern 0989. 'Grams: Reckoners, B'ham.

THE BRITISH GAS PURIFYING MATERIALS CO., LTD.

NATURAL BRITISH.

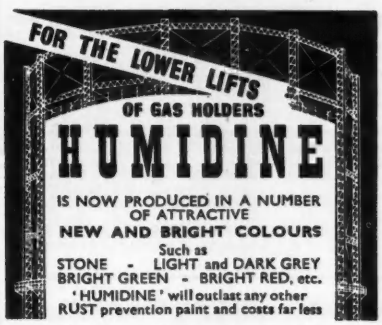
BOG (DUTCH and DANISH) ORE.

SPENT OXIDE.

LONDON ROAD, LEICESTER.

Telegrams : "BRIPURIMAT"

Telephone : 59086



IS NOW PRODUCED IN A NUMBER OF ATTRACTIVE NEW AND BRIGHT COLOURS

Such as STONE - LIGHT and DARK GREY BRIGHT GREEN - BRIGHT RED, etc.

'HUMIDINE' will outlast any other RUST prevention paint and costs far less

WRITE FOR SAMPLES OF SHADES and further details to the sole makers

ASPINALLS (PAINTS) LTD.

CARLETON - SKIPTON - YORKS.

'Phones : SKIPTON 548/9,

ndh 567

"KLEENOFF" *

THE COOKER CLEANER

"KLEENOFF"

FIBRE BRUSHES

RUBBER MOPS

KETTLE DESCALER *

(NEW "KLEENOFF" PRODUCT)

* *For resale to the public, and in bulk for Works use.*

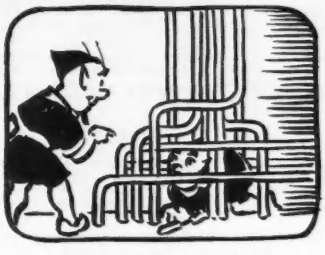
BALE & CHURCH, LTD.

7, CROMPTON WAY, CRAWLEY, SUSSEX.

PATENTS

KINGS PATENT AGENCY, LTD.

(Director, B. T. King, A.I.M.E., Patent Agent). Advice, Handbook, and Consultations free. 146a, Queen Victoria Street, London, E.C.4. 'Phone : City 6161.



THE "FLUXITE QUINS" AT WORK

"What's all the crowing about?
Nice work by FLUXITE, no doubt,
But between you and me
I'm just waiting to see,
How you're planning to plumb your way out!"

For all SOLDERING work—you need FLUXITE—the paste flux—with which even dirty metals are soldered and "tinned." It does not "poison" the solder nor corrode the metal.

With Fluxite, joints can be "wiped" successfully that are *impossible by any other method.*

FLUXITE has been used for over 40 years in the Government Works and by the leading Engineers and Manufacturers. OF ALL IRONMONGERS—in tins—From 1/- upwards.

FLUXITE

SIMPLIFIES *ALL* SOLDERING

Write for Leaflets on CASE HARDENING STEEL and TEMPERING TOOLS with FLUXITE also on "WIPED JOINTS". Price 1½d. each.

Fluxite Ltd. (Dept. G.J.), Bermondsey Street, S.E.1

FIRE!

WHERE'S YOUR

NU-SWIFT?

The World's Fastest Fire Extinguishers
—for every Fire Risk

Pressure-operated by sealed CO_2 Charges

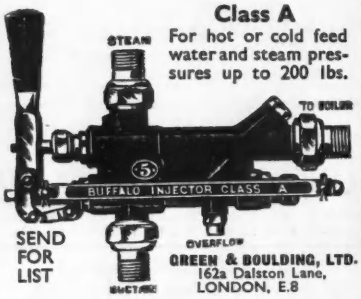
NU-SWIFT LTD · ELLAND · YORKS

In Every Ship of the Royal Navy

BUFFALO INJECTORS

Class A

For hot or cold feed water and steam pressures up to 200 lbs.



SEND FOR LIST

GREEN & BOULDING, LTD.
162a Dalston Lane,
LONDON, E.8

APPOINTMENTS VACANT

The engagement of persons answering these advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she, or the employment, is excepted from the provisions of the Notification of Vacancies Order, 1952.

SCOTTISH GAS BOARD

GLASGOW DIVISION

GLASGOW DISTRICT CHEMICAL WORKS

TECHNICAL RESEARCH ASSISTANT

APPLICATIONS are invited for the above post from persons with a University Degree or similar qualification in Chemistry and/or Chemical Engineering, and considerable experience preferably in the Tar and By-Product Industry.

The salary will be in the range of £720-£845 per annum, *i.e.*, A.P.T. XII of the Board's Scale of Salaries.

The successful applicant may be required to pass a Medical Examination and to subscribe to such Superannuation Scheme as the Board may adopt.

Applications, endorsed "Research," to be received not later than Saturday, August 30, 1952, giving full details of qualifications and experience, together with names and addresses of two referees, and should be addressed to the undersigned at 30, John Street, Glasgow, C.1.

D. F. YOUNG,
Divisional Controller.

SCOTTISH GAS BOARD

EDINBURGH DIVISION

DIVISIONAL ENGINEER

APPLICATIONS are invited for the post of DIVISIONAL ENGINEER. The person appointed will be responsible to the Divisional Controller for production and construction work within the Division and will be required to act as Senior Officer in his absence.

Candidates must be Corporate Members of the Institution of Gas Engineers or possess equivalent qualifications. The salary scale for the position is £1,425-£1,675 per annum rising by annual increments of £50 ; and placing will be given in accordance with the qualifications and experience of the successful candidate.

Applications giving age, full details of education, training and experience with positions held, together with the names of three referees, should be delivered to the undersigned within twenty-one days of the appearance of this advertisement.

DAVID BEAVIS,
Divisional Controller.

15, Calton Hill,
Edinburgh, 1.

EAST MIDLANDS GAS BOARD

TECHNICAL ASSISTANT TO THE COMMERCIAL MANAGER

APPLICATIONS are invited for the appointment of TECHNICAL ASSISTANT to the Commercial Manager of the Board at Leicester.

The officer appointed will be responsible mainly for investigating the performance of new appliances and appliances on the district, checking on the manufacture and production of appliances produced for the Board, co-operation with the research bodies of the industry and the research staffs of appliance manufacturers and participation in the technical training of district representatives and district foremen. He should hold an appropriate University degree.

The commencing salary will be at a rate not less than £1,250 per annum.

The post is superannuable and the successful candidate may be required to pass a medical examination.

Applications with full details of age, qualifications, education and experience should be addressed to the undersigned to be received not later than August 22, 1952.

A. GWYNNE DAVIES,
Secretary.

Beverley House,
University Road,
Leicester.

EAST MIDLANDS GAS BOARD

DISTRIBUTION SUPERINTENDENT—STAMFORD GROUP

APPLICATIONS are invited for the above post. Applicants should have a sound knowledge of gas supply, mainlaying, sales and service.

The appointment will be made on Grade A.P.T. VI (£460/540). The post is superannuable and the successful candidate will be required to undergo a medical examination.

Applications stating age, qualifications, experience and present salary, and giving the names of two referees, should be addressed to the Group Manager, East Midlands Gas Board, St. Mary's Street, Stamford, Lincs., to arrive not later than August 25, 1952.

BERNARD CLARKE,
Divisional General Manager.

Lincoln.

N.B.—A house will be available in about three months on a service agreement at a nominal payment.

WEST MIDLANDS GAS BOARD

DIVISIONAL CHIEF CHEMIST
BIRMINGHAM DIVISION

APPLICATIONS are invited for the above appointment at a commencing salary of £1,500 per annum.

Candidates must possess appropriate technical qualifications and have had wide experience in the Gas or Chemical Industry.

The duties will comprise responsibility for chemical control at all the Works of the Division, the supervision of the Chemical Staff and other personnel, together with such other duties as may be assigned by the Divisional General Manager.

The successful applicant may be required to pass a medical examination and the appointment will be subject to any superannuation scheme which the Board may introduce.

Applications, stating age, qualifications, and accompanied by the names of two referees, should be addressed to the Industrial Relations Officer, West Midlands Gas Board, 6, Augustus Road, Birmingham 15, to reach him within fifteen days of the appearance of this advertisement.

F. H. CURETON,
Secretary to the Board.

WEST MIDLANDS GAS BOARD

AREA CHIEF CHEMIST

APPLICATIONS are invited for the above appointment at a commencing salary of £1,750 per annum.

Candidates must possess high technical qualifications and have had wide experience in the gas or other industry.

The duties will comprise collaboration in special investigations under the Director of Research, the co-ordination of chemical control at the various works, and the supervision of tests, experiments and analyses.

The duties will be based upon the Central and Research Laboratories, Nechells, Birmingham.

The successful applicant may be required to pass a medical examination and the appointment will be subject to any superannuation scheme which the Board may introduce.

Applications, stating age, qualifications and experience and accompanied by the names of two referees, should be addressed to the Industrial Relations Officer, West Midlands Gas Board, 6, Augustus Road, Birmingham 15, to reach him within fifteen days of the appearance of this advertisement.

F. H. CURETON,
Secretary to the Board.

MISCELLANEOUS

MOISTURE TESTING for coal, coke and ash and many chemicals. Modern method in 'SPEEDY' MOISTURE TESTER giving accurate percentage water in 2/3 minutes. Already in use extensively in Gas Industry. Needs no electricity. Portable, simple for use by unskilled labour. Write for illustrated brochure, or order direct, £24 10s. Oil complete—Thos. Ashworth & Co., Ltd. (Dept. G.J.), Basket Street, Burnley, Lancs.

PLANT FOR SALE & WANTED

CONNELL OF COATBRIDGE

OFFER ANOTHER SELECTION FROM THEIR LARGE STOCKS OF RECONDITIONED PLANT

GENERATING PLANT

500 K.W. Fraser & Chalmers Turbo Alternator Set, 275 lbs. steam pressure. With David Brown Reduction Gear, ratio 4,300/750 r.p.m. and Metro-Vick Alterna. 625 K.V.A., .8 power factor, 440 volts, 3-phase, 50 cycles, 820 amps.

75 K.W. Cummins/G.E.C. diesel generating set, comprising 75 K.W. 220 volt, D.C. generator by G.E.C. Speed 1500 r.p.m. Direct coupled to Cummins diesel engine, model H.G.S.D.

66 K.W. Steam-driven Generating Set, comprising Bellis & Morcom vertical compounded, self-lubricating steam engine. Cylinders 8 in. and 11 in. dia. × 6 in. stroke. Working pressure 100 lbs. per sq. inch. Mounted on cast iron bed plate and driving through vee belts two generators in tandem, each 33 K.W. 6 volts, 550 amps., 1,500 r.p.m. Manufactured by Laurence Scott & Co., Ltd., Year 1942.

ROD MILLS

12 ft. × 5 ft. Rod mills by Ernest Newall & Co., Ltd., Doncaster. Capacity approx. 5 tons per hour. Complete with feed and discharge conveyors. Sturtevant air separator, reject and final delivery conveyors. Electric driven, 440/3/50. Excellent condition.

FURNACES

Practically unused, gas fired, Muffle furnace by The Thermic Equipment & Engineering Co. Dome chamber 30 in. × 24 in. × 12 in. Counterbalanced door. Damper adjustment. A modern unit in excellent condition.

WATER TUBE BOILERS

Practically unused, oil fired, self contained marine type Water Tube, Babcock & Wilcox Boiler. Working pressure 250 lbs. Evaporation 22,000 lbs. per hour. Heating surface 3,150 sq. ft. Ideal for land installation. Can be moved in one piece. Complete with oil firing equipment, gangways, ladders, feed pumps and chimney.

For full particulars contact :

JAMES N. CONNELL LIMITED

COATBRIDGE, SCOTLAND.

Telephone : Coatbridge 1121 (5 lines).

WANTED :—REGULAR SCRAP GAS METERS AND PARTS. Best prices paid. Offers to : Mitcham Smelters Ltd., Red House Road, Croydon, Surrey. *Tel.*: THOrnton Heath 6101 (Private Branch Exchange).

The
LIMIT OF EFFICIENCY CAN BE REACHED
by the use of

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GAS PURIFYING MATERIAL

Sole Importers:
HARRISONS (London) LIMITED
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Telegrams : Birchrock, London
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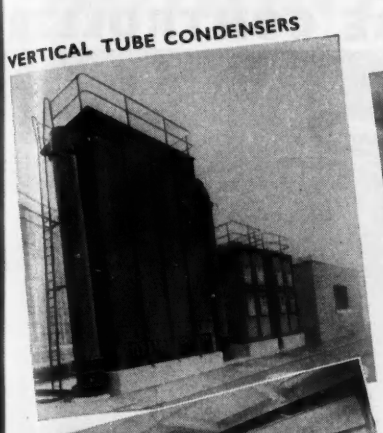
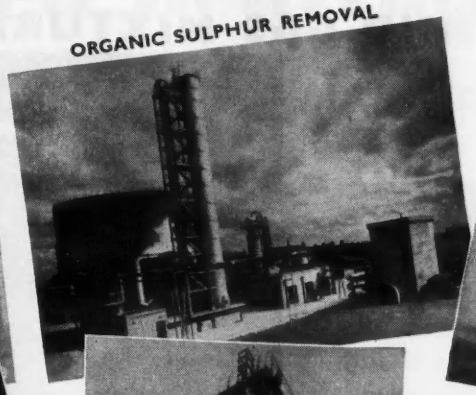
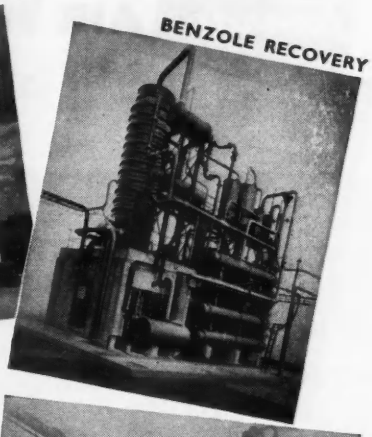


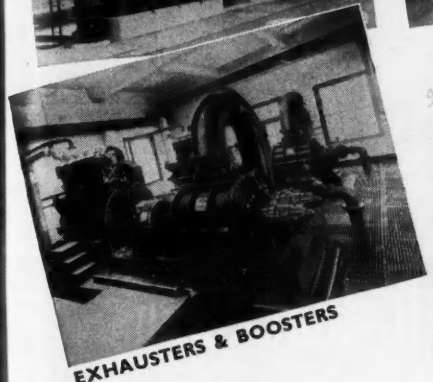
VERTICAL TUBE CONDENSERS



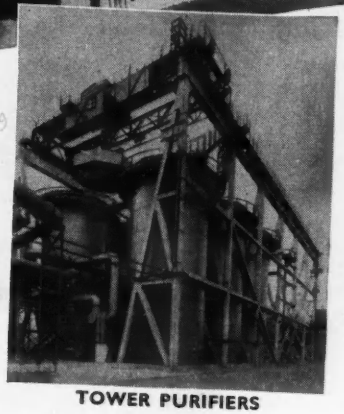
ORGANIC SULPHUR REMOVAL



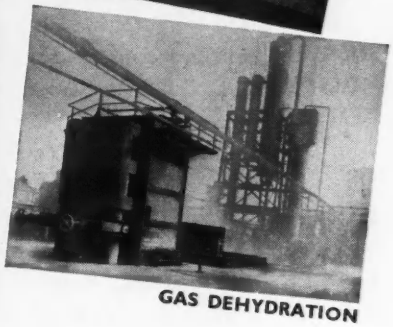
BENZOLE RECOVERY



EXHAUSTERS & BOOSTERS



TOWER PURIFIERS



GAS DEHYDRATION

Almost every established practice

IN THE GAS INDUSTRY began with the idea of improving the product and thereby the service to the community.

Upon this basis many processes and plant of varying complexity have been evolved by Holmes and have proved their usefulness.

FOUNDED 1850
HOLMES
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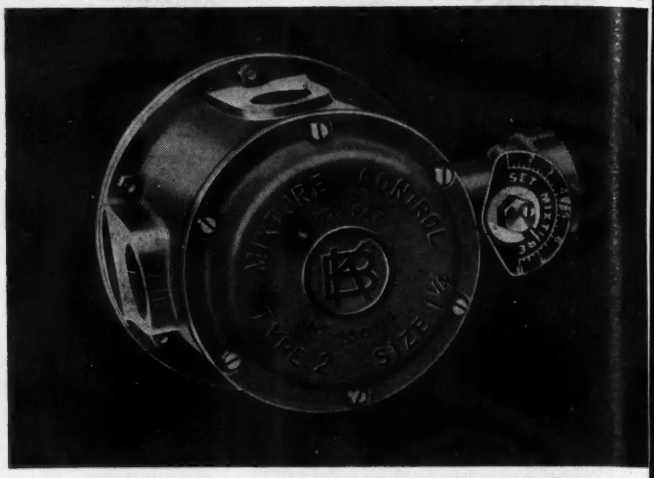
"Tornado" **AIR AND GAS MIXTURE CONTROLLER**

INJECTORS BURNER NOZZLES BLOWPIPES RADIANT DISC BURNERS LAUNDRY AND TAILOR IRONS SOLDERING IRONS SOLDERING STOVES SMALL FURNACES **"TORNADO"** AIR AND GAS MIXTURE CONTROLLERS AUTOMATIC CUT-OFF SWITCH (ALSO USED AS METER PROTECTION VALVE **INDUSTRIAL GAS** AND AIR FLOW SWITCH) AUTOMATIC SHUT-OFF VALVES NON-RETURN OR BACK PRESSURE VALVES METER PROTECTION VALVES (BY-PASS TYPE) **EQUIPMENT** RELAY THERMOSTATS THERMOSTAT CONTROLLERS DIRECT ACTING THERMOSTATS SERVICE GOVERNORS AIR FLOW SWITCHES COMPRESSORS GAS FIRED UNIT HEATERS GAS BOOSTERS AIR BLOWERS



FOR CONTROLLING THE QUALITY OF AIR/GAS MIXTURE *irrespective of varying pressures and resistances. Temperature control is varied by manipulation of the air cock only.*
CAPACITY RANGE: *from 130 to 1,380 cub. ft. of gas per hour according to air pressure (¼ lb. to 1 lb.) and size. For low pressure gas systems.*
AIR INLETS: *1", 1¼", 1½" and 2" dias. gas thread.*

Keith Blackman LIMITED
MILL MEAD ROAD TOTTENHAM LONDON N.17
Phone Tottenham 4522 (twelve lines) Grams "Keithblac, Norphone, London"

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It's better to go straigh
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in Flanged Fittings, Flange
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** Fabricated Pipework*
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those who require 100
reliability go to **KIRK**

KIRK & CO. (TUBES) LTD.
74/82 PARADISE STREET · LONDON · S.E.16 BERMONDSEY 3156/7/8
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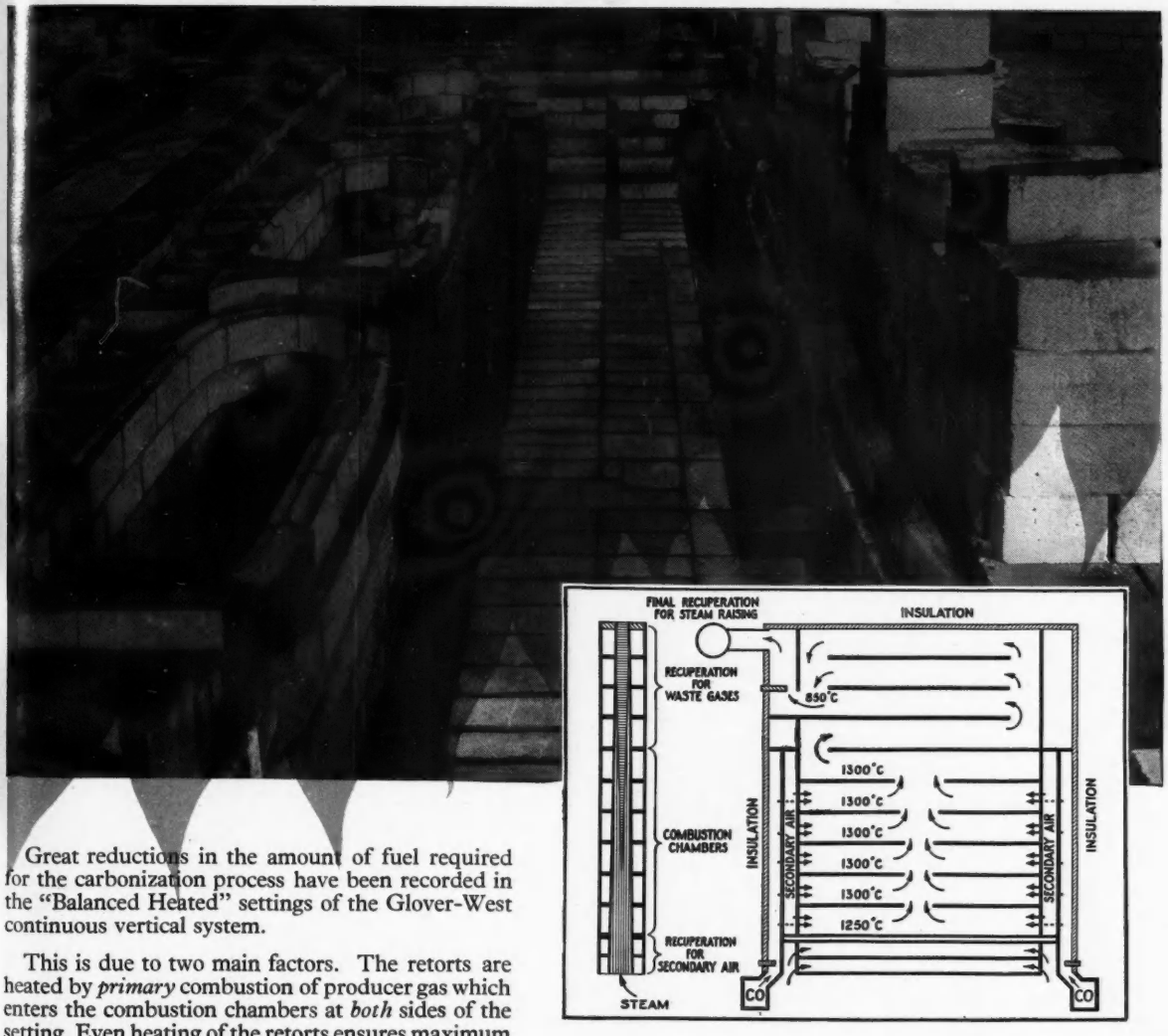
the heart of reliability . . . .

Printed by Straker Brothers Ltd., E.C.2, for Walter King, Limited, 11, Bolt Court, Fleet Street, London, E.C.4. Wednesday, August 13, 1952

"Balanced Heating"

MEANS ECONOMICAL GAS—MAKING



Great reductions in the amount of fuel required for the carbonization process have been recorded in the "Balanced Heated" settings of the Glover-West continuous vertical system.

This is due to two main factors. The retorts are heated by *primary* combustion of producer gas which enters the combustion chambers at *both* sides of the setting. Even heating of the retorts ensures maximum utilization of heat and eliminates high local temperatures and fuel wastage.

In addition, improved control of individual combustion chamber temperatures ensures maximum gas production from all coals.

West's Gas
IMPROVEMENT CO. LTD.

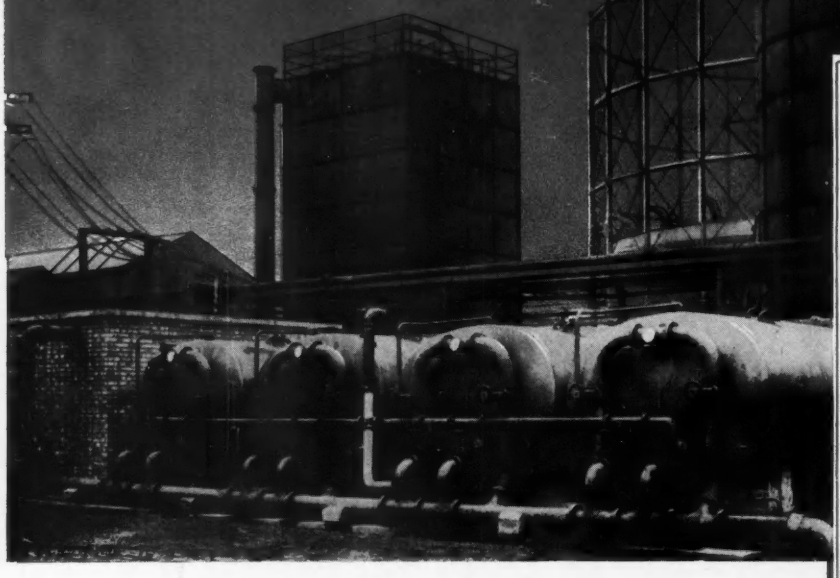
ALBION IRONWORKS · MILES PLATTING · MANCHESTER 10

Telephone: COLlyhurst 2961. Telegrams: Stoker, Manchester.

London Office: Columbia House, Aldwych, W.C.2. Phone: HOLborn 4108-9 Grams: Wesgasco, Estrand.

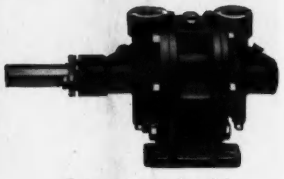
Pulsometer

PUMPS AND FILTERS

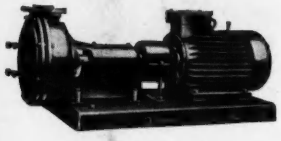


Filtration Plant in Gasworks

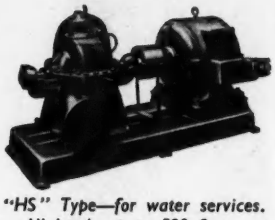
The illustrations show centrifugal pumps for light and heavy oil and liquor duties, stoneware and special metal pumps for handling acids and alkalis, pumps for circulating and washer duties, for clean water and fire services and for liquids containing abrasives.



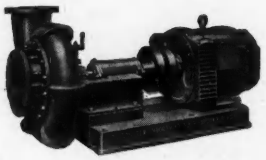
Rotary pump for Oil transfer duties.



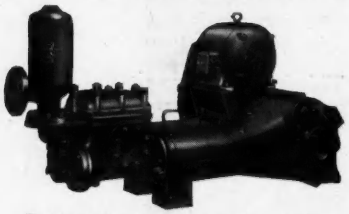
Stoneware pump for Corrosive and chemicals.



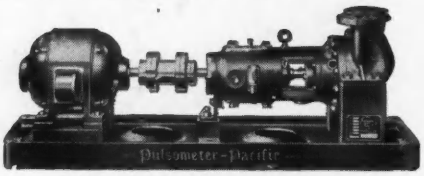
"HS" Type—for water services. All heads up to 500 feet.



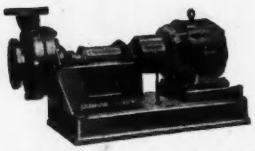
Slurry pump for coal washing and abrasive liquids.



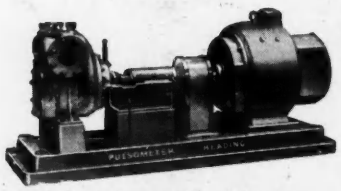
Reciprocating pump of modern design for Gas Works.



Pulsometer—Pacific type, based on latest American practice.



"JA" & "JB" types for high temperature water circulation.



Self priming centrifugal pumps.

PULSOMETER ENGINEERING Co. Ltd., Nine Elms Ironworks, READING